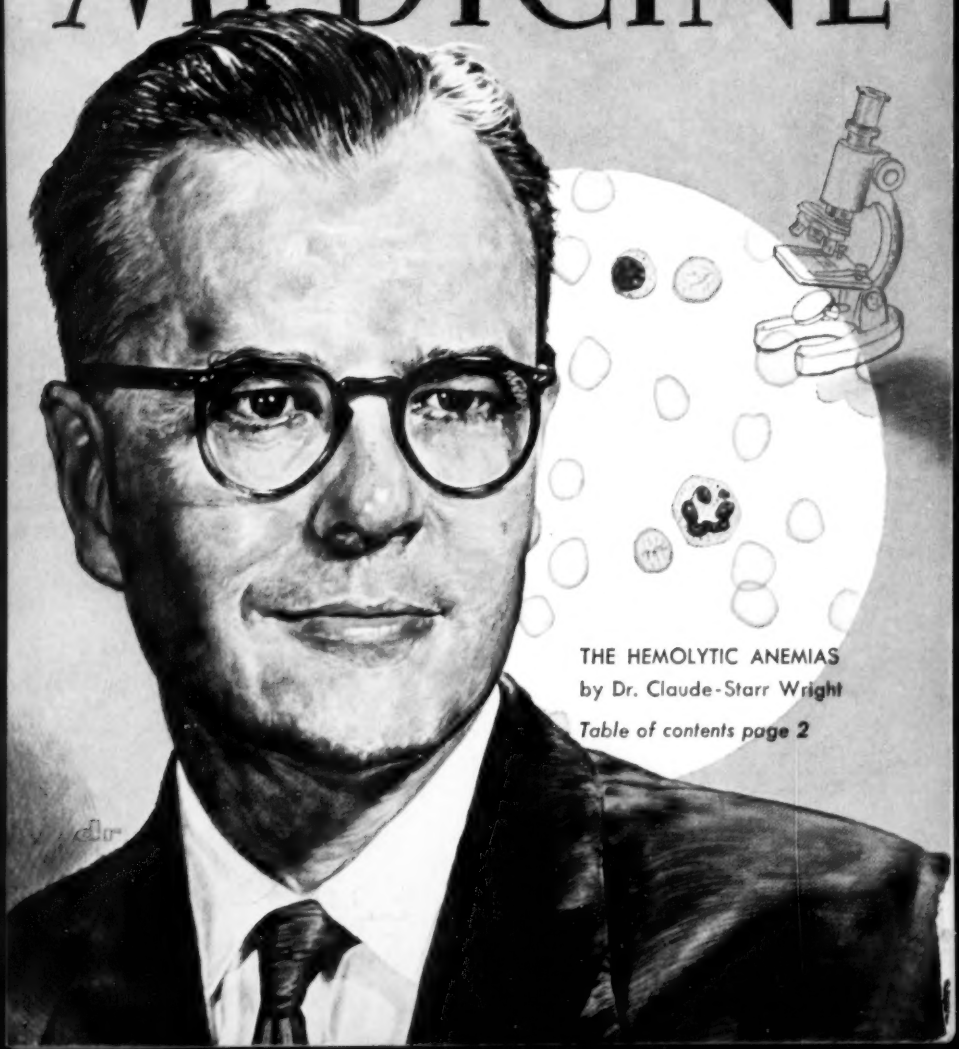
DECEMBER 15, 1954

MODERN MEDICINE

The Journal of Diagnosis and Treatment



THE HEMOLYTIC ANEMIAS
by Dr. Claude-Starr Wright

Table of contents page 2

in hypertension

Nitranitol with Rauwolfia

tandem action for safe, gradual, prolonged relief

Nitranitol for prompt relief of distressing symptoms... slower acting Rauwolfia for prolonged hypotensive and quieting action--no lag in symptom relief. The combination means normal life sooner for your essential hypertensives... no jolting of the vasomotor reflexes... side effects are uncommon.

write: Nitranitol R.S. (RAUWOLFIA SERPENTINA)

for a more normal life sooner for your hypertensive patient

Rx INFORMATION

Nitranitol

SIX DOSAGE FORMS

Nitranitol R.S.
for direct vasodilation plus the added central hypotensive and calming actions of Rauwolfia serpentina
Mannitol hexanitrate . 32 mg.
Rauwolfia serpentina (alseroxylon fraction) . 0.5 mg.

Nitranitol
for safe, gradual, prolonged vasodilation
Mannitol hexanitrate . 32 mg.

Nitranitol with Phenobarbital
for the nervous hypertensive
Mannitol hexanitrate . 32 mg.
Phenobarbital . . . . . 16 mg.

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for protection in capillary fragility
with Rutin . . . . . 20 mg.

Nitranitol with Phenobarbital and Theophylline*
in threatened cardiac failure
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Nitranitol P.V.*
in refractory cases
with alkaverver . . . . 1 mg.
(standardized fraction of Veratrum viride, standardized for hypotensive activity)

DOSAGE: In blood pressures over 200 systolic, 2 tablets four times daily. In other cases, 1 or 2 tablets every four to six hours. Bottles of 100 and 1,000.

NOTE: Nitranitol is exceptionally stable, assuring uniform potency, so important in medication for your hypertensives.

*Each contains mannitol hexanitrate 32 mg. and phenobarbital 16 mg.

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Relief of pain is a significant step toward rehabilitation for patients with arthritis, osteoarthritis, acute or chronic gout and other related disorders. The rapid and marked effectiveness of Acetycol is demonstrated by a widened range of pain-free movement. With Acetycol, patients may lead a more normal, productive and satisfying life.

Acetycol employs the analgesic action of aspirin, potentiated by para-aminobenzoic acid. Synergism between these two components permits attainment of high salicylate blood levels with relatively low dosage. Salicylated colchicine extends the effectiveness of Acetycol to gout or cases of a gouty nature.

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Supplied: Bottles of 100 and 500.

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*TRADEMARK

MODERN CONTENTS

Volume 22
Number 24

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DEPARTMENTS

SPECIAL ARTICLE

SURGERY

MEDICINE
for December 15, 1954

Walter C. Alvarez
Editor-in-Chief

•

THE MAN ON THE COVER is Dr. Claude-Starr Wright, Associate Professor of Medicine at Ohio State University. Dr. Wright is a diplomate of the American Board of Internal Medicine, a member of the American Federation of Clinical Research and the Central Society for Clinical Research, and a fellow of the International Society of Hematologists. Among his contributions to medical literature is the Special Article on page 73, "The Hemolytic Syndromes."

CONTINUED

Contents for December 15 1954

angina pectoris

coronary occlusion

peripheral or pulmonary embolism

'Paveril Phosphate'

(Dioxyline Phosphate, Lilly)

relaxes vasospasm

increases exercise tolerance

lessens the frequency of pain

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AVERAGE DOSE:

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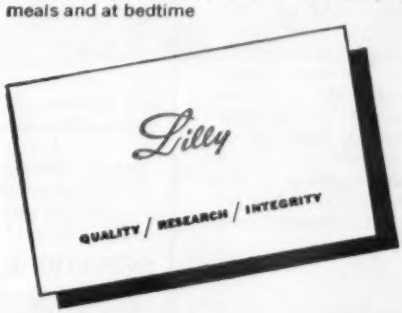

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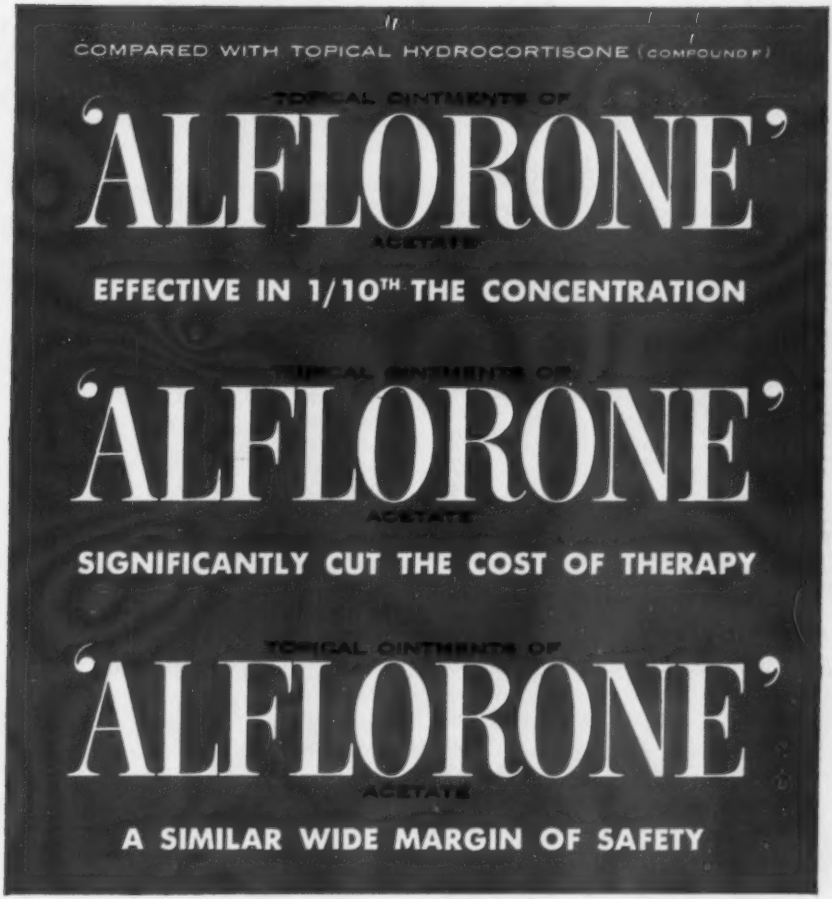

Indications: Therapeutic range of ALFLORONE is essentially the same as topical forms of hydrocortisone (Compound F).

Supplied: Topical ointments of ALFLORONE Acetate (Fludrocortisone Acetate, Merck) 9, alpha-Fluorohydrocortisone Acetate; now available . . . in 5-Gm. tubes in concentrations of 0.1% *and* 0.25% in an emollient base.

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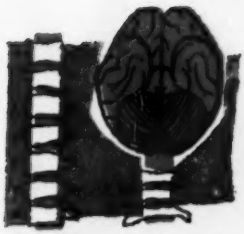
MODERN MEDICINE

Therapeutic Index

for December 15, 1954

THIS INDEX, prepared for your convenience, lists all advertised products. Some products may be specifically indicated for more than one category, but space restricts listings to one category only. Details concerning the use of these products may be had by referring to pages listed, or by writing the manufacturer.

A low incidence of side effects and extremely low toxicity make ELKOSIN a sulfonamide preparation of relatively high therapeutic safety



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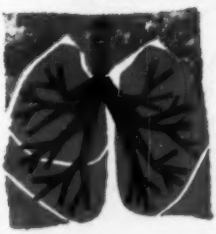
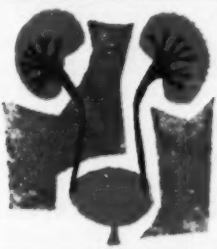
a highly soluble single sulfonamide



ELKOSIN is highly soluble and has a wide range of antibacterial activity. No alkalization is necessary.



ELKOSIN is indicated in sulfonamide-susceptible urinary infections, respiratory infections, meningococcal meningitis and streptococcal infections.

ELKOSIN is available in tablets, 0.5 Gm. (double-scored); bottles of 100, 500 and 1000. For pediatric use, Elkosin Syrup, a strawberry-flavored Suspension in Syrup, 0.25 Gm. per 4-ml. teaspoonful; pints.

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nausea-free,
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New combination attacks nausea and vomiting of pregnancy on two planes:

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1. Garrett, T. A.: Personal communication.

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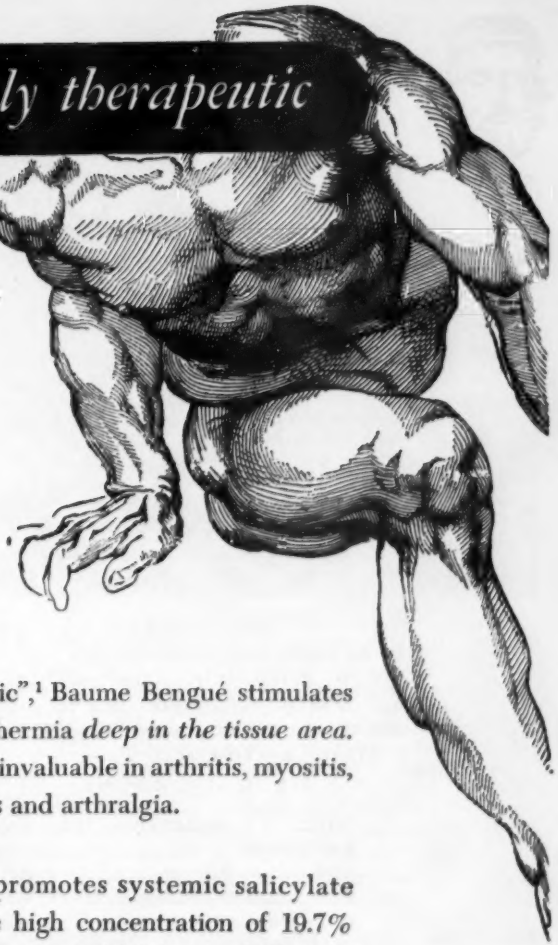

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1. Lange, K., and Weiner, D.: J. Invest. Dermat. 12:263 (May) 1949.

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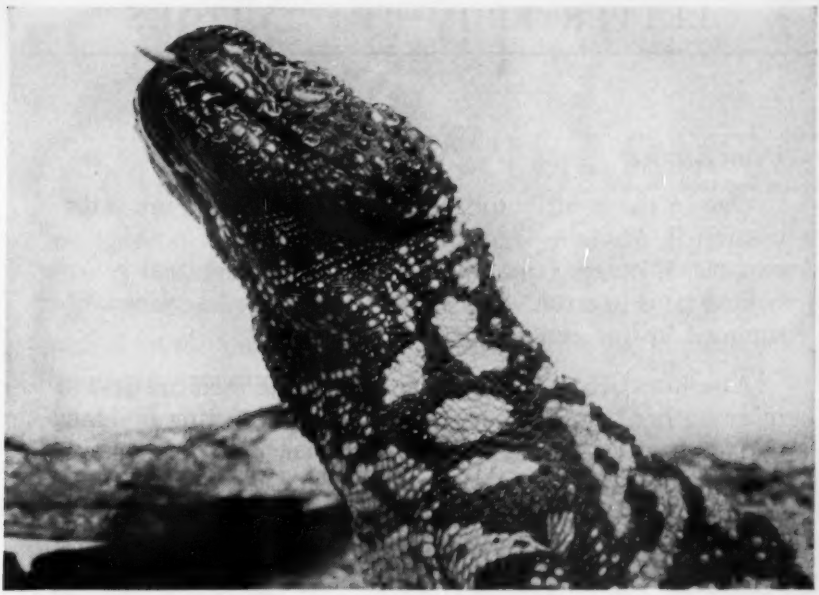

the grim Gila isn't prone to dyspepsia...

Miniature descendant of the Dinosaurs, the Gila monster (**Heloderma suspectum**) of the southwestern deserts is one of the only two poisonous lizards known. Enormously powerful jaws and numerous grooved teeth enable the Gila to secure its prey of small animals. But even its own venomous saliva doesn't make this monster dyspeptic.

More emotional than the Gila, however, **Homo sapiens** frequently gives himself dyspepsia or even peptic ulcer. When he does, pleasant-tasting TITRALAC is a logical prescription. It gives relief in minutes that continues for hours. This was shown by *in vitro* tests on 16 commonly used antacids. In this study, TITRALAC

"...brought the pH up the most rapidly and to the highest level of all the preparations which were investigated. The sustaining power was stronger, in addition."

Hammarlund, E. R., and Bising, L. W.: *J. Am. Pharm. A. (Scient. Ed.) 41*:200, 1952.

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LETTER FROM THE EDITORS

Dear Reader:

One of the contributors to a recent Medical Forum discussion in *Modern Medicine* writes, "There is nothing so capable of making one think as the knowledge that others believe he is in error." In a single sentence he has admirably summed up the aim of our Medical Forum.

Absolutes are as hard to come by in the medical field as in any other field of human endeavor. Conflicting opinions derived from essentially the same experiences help to remove some of the shadows in obscure or controversial areas. An opinion contrary to our own does not necessarily convince us of our error but it does cause the thoughtful man to reconsider his position and to do some constructive thinking on the problem. That is the virtue of the Medical Forum discussions.

Each of the contributors brings the weight of his experience and his thinking to bear upon the particular problem posed in the question. No other discipline is imposed, and the ideas are left to fend for themselves in the rough-and-tumble exchange.

Many readers tell us that the Medical Forum is the first thing they turn to when their *Modern Medicine* arrives. Often they are stimulated to reread the article under discussion and contribute a few pertinent comments of their own.

We believe that some of the most interesting and original writing in medicine, and at times some of the most provocative, appears in our Medical Forum. It is a forum for our readers, and we are proud of the free-swinging vigor of the contributors.

The Editors

"...BEST METHOD AVAILABLE..."

After giving 'Teldrin' *Spansule* capsules to 30 allergic patients over a 6 month period, Rogers[1] concluded:

"It is our belief that this drug in this form provides the best method available for using antihistamine medication."

'Teldrin' *Spansule* capsules are "the best method available" because they incorporate 3 distinct advantages:

1. They contain chlorprophenpyridamine maleate, the widely prescribed, well-tolerated antihistamine.
2. They release this drug slowly, continuously, and uninterruptedly over a period of 8-10 hours, with a therapeutic effect lasting approximately 12 hours. Side effects are thus held to a minimum.
3. They provide maximum dosage convenience.

TELDRIN*

chlorprophenpyridamine maleate

SPANSULE*

brand of sustained release capsules

S.K.F.'s widely acclaimed new

ANTIHISTAMINE

preparation

made only by

Smith, Kline & French Laboratories, Philadelphia 1

the originators of sustained release oral medication

1. Rogers, H. L.: Ann. Allergy 12:266 (May-June) 1954.

*T.M. Reg. U.S. Pat. Off. Patent Applied For

Correspondence

Communications from the readers of MODERN MEDICINE *are always welcome. Address communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Disgusted and Ashamed

TO THE EDITORS: Congratulations to Dr. J. Gordon Beaton for his letter to the editor (*Modern Medicine*, Oct. 1, 1954, p. 32).

These draft-dodging Group III colleagues of mine make me disgusted and ashamed to be associated with such a group. The excuse that they are not physically qualified for service falls down when the forty-hour service workweek is compared with the considerably longer civilian workweek.

LT. JOHN W. SCHMAUS, M.C., U.S.A.F.
San Antonio, Tex.

Hyaline Membrane Disease

TO THE EDITORS: In the Questions & Answers department of the October 1, 1954 issue of *Modern Medicine*, there is a discussion on prevention of hyaline membrane disease in the newborn after cesarean section. We have reasoned that one of the main differences between birth by cesarean section and birth by labor is the "milking" effect on the chest in passing through the birth canal.

In the past several months, we have made it a practice to stimulate this process by milking down the chest by firm pressure immediately after delivery and before the first breath. We also routinely aspirate the pharynx and stomach. Since we started this we have not encountered any cases of hyaline disease.

BERNARD P. HARPOLE, M.D.
Portland, Ore.

Shipyard Wants Doctors

TO THE EDITORS: The U. S. Navy has reduced the number of military medical officers assigned to industrial medical dispensaries where the work primarily concerns provision of medical services to civilian employees. Accordingly, this shipyard is seeking to employ 5 civilian physicians on a full-time basis.

Information and forms for application may be secured from the Board of U. S. Civil Service Examiners, Puget Sound Naval Shipyard, Bremerton, Wash.

Any assistance you can give in publicizing our needs to the medical profession will be appreciated.

E. O. LILLOREN
Acting Employment Superintendent
Bremerton, Wash.

from the literature...

"The value of CHLOROMYCETIN in the treatment of infections due to most bacteria, the pathogenic rickettsiae, and many of the large viruses has now been well established."[1]

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"Our experience...and many others all show that chloramphenicol [CHLOROMYCETIN] has an established place in the treatment of typhoid fever."[2]

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"At the present time chloramphenicol [CHLOROMYCETIN] is recognized as a potent antibiotic whose ease of administration and prompt diffusion into serum and spinal fluid makes it a particularly useful agent in the treatment of many forms of purulent meningitis."[3]

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"Within ten days [after therapy with CHLOROMYCETIN was begun] there was a dramatic improvement in the patient's clinical appearance and the sedimentation rate and temperature became normal."[4]

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"Chloramphenicol [CHLOROMYCETIN] has been used with striking success in patients with scrub typhus, murine typhus, Rocky Mountain spotted fever, and epidemic typhus."[5]

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CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

1. Yow, E. M.; Taylor, F. M., Hirsch, J.; Frankel, R. A., & Carnes, H. E.: *J. Pediat.* **42**:151, 1953.
2. Dodd, K.: *J. Arkansas M. Soc.* **10**:174, 1954.
3. Hanbery, J. W.: *Neurology* **4**:301, 1954.
4. Miller, G.; Hansen, J. E., & Pollock, B. E.: *Am. Heart J.* **47**:453, 1954.
5. Keefer, C. S., in Smith, A., & Wermer, P. L.: Modern Treatment, New York, Paul B. Hoeber, Inc., 1953, p. 65.

PARKE, DAVIS & COMPANY DETROIT 32, MICHIGAN

Liver Function Tests

TO THE EDITORS: The paper on liver function tests in viral hepatitis by Lt. Joe R. Kimmel and associates (*Modern Medicine*, Sept. 15, 1954, p. 91) is very timely.

The authors claim that only two liver function tests—total serum bilirubin and bromsulphalein retention—are needed to guide therapy for viral hepatitis with jaundice. I must disagree with them.

My strongest objection is that all routine tests for the evaluation of liver function are not true tests. A function is the performance of an action. Applied to the liver it can mean nothing else but an intrinsic action. Only if the hypothalamic center of hepatic function could be so stimulated as to have the liver perform a physiologic action would a true or direct liver function test be available to medicine. Furthermore, the result of such a test must be normal or abnormal since liver function cannot be positive or negative, a contradiction in itself.

It is supposed that in cases of viral hepatitis with jaundice, icterus is caused by disrupted intracellular bile canaliculi and by thrombi formed by bile. Considering the enormous capacity of regeneration of the liver tissue, the first symptom to subside will be jaundice. But do the reduced values of total serum bilirubin—below 1 mg. per 100 cc.—then indicate and confirm an improved liver function? Such

a conclusion does not seem to be permissible because it is drawn from an indirect fact, namely the reduction of total serum bilirubin which at best would only mean an improved liver condition. (A condition is a state, not an action.)

The dye-excreting capacity of the liver is used in the bromsulphalein retention test. This dye must be injected intravenously and if more than 5% is retained after forty-five minutes, the result is positive. This method is an excellent example of an extrinsic test. It is rather well liked by the medical profession but it does not comply with the requirements of a true liver function test. It too concerns only the liver condition and not an intrinsic hepatic function.

The authors have also stated that they found several other tests, among them the determination of gamma globulin, less reliable. I agree that this serum protein frac-

(Continued on page 26)

". . . and if you put that cold stethoscope back on me, I'll scream into it again!"

tion alone cannot be used for the evaluation of the liver function. But, if the changes of the albumin-globulin ratio are followed for this purpose while the patient is treated, the situation is completely different. I have explained how the albumin-globulin ratio can be used as the most reliable liver function test *(Internat. Rec. Med.* 165:273, 1952). It complies with the requirements of an intrinsic test since the blood proteins are synthesized in the parenchymal liver cells. While the albumin fraction is rather stable, the globulin fraction is more labile; the albumin-globulin ratio is one of the stablest values of the human body and in a healthy person does not change for days. Therefore, if frequent shifts occur, a special significance is attached to them and, if properly evaluated, much desirable information on the liver function can be obtained.

The blood proteins have been the object of extensive research during the last decade. The results have revealed that the great importance of these substances for life and death of man cannot be overrated. In a paper to be published, I have stated, "We live on albumin, we stop bleeding with fibrinogen, we fight for our lives with all three globulin fractions and finally we die of our incapacity of synthesizing more plasma proteins."

JOSEPH H. ISENSTEAD, M.D.
Canajoharie, N.Y.

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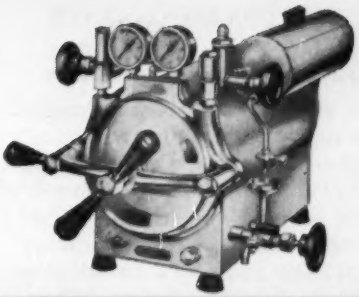

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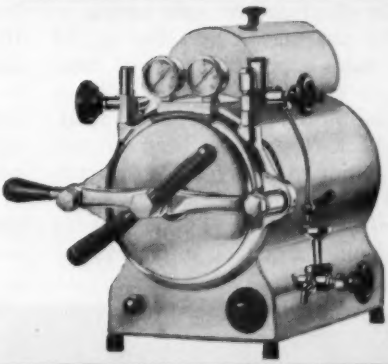

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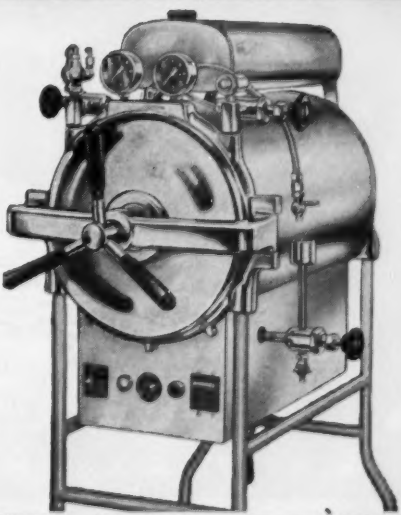

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Pharmacodynamic Antibiotics

TO THE EDITORS: The "Symposium on Ill Effects of Antibiotics" (*Modern Medicine*, Oct. 1, 1954, p. 142) included discussions of classic sensitization, resistance, and gastrointestinal and genitourinary effects. The antibiotics, in addition to their chemotherapeutic effects, have distinct autonomic and endocrinous pharmacodynamic action.

The pharmacologic effect could be a more important phase of therapeutic efficacy of antibiotics than the commonly held chemotherapeutic effect. There has been greater recognition recently of a theoretically disturbing propensity of antibiotics [1] to be beneficial in infections caused by organisms insensitive, in vitro, to the applied antibiotic, [2] to control conditions on a dosage schedule that would make systemic distribution of antibiotics unlikely, or [3] to salubriously affect conditions which probably do not have an infectious basis.

The exemplified discordances are instructive in 3 directions:

1] Since the spectrum of an antibiotic is probably of less concern than formerly thought, antibiotic administration should be restricted to the *Streptomyces*-derived antibiotics, any one of which can reasonably replace penicillin for routine administration.

2] Reduction of tetracycline dosages from the arbitrarily conventionalized range of 25 to 50 mg.

No. 12 of a series to resolve

SULFA DRUG FACTS

Q. Which of the sulfas are most effective in the treatment of streptococcal infections?

A. Sulfadiazine and the closely related merazine and methazine are the standard of effectiveness, among sulfonamides, against streptococci. They are particularly valuable in reinforcing antibiotic therapy or where antibiotics cannot be used.

Triple Sulfas (Meth-Dia-Mer Sulfonamides) remain unsurpassed among sulfa drugs for Highest potency • Wide spectrum • Highest blood and tissue levels • Safety • Minimal side effects • Economy • This is why leading pharmaceutical manufacturers offer Triple Sulfas to the medical profession.

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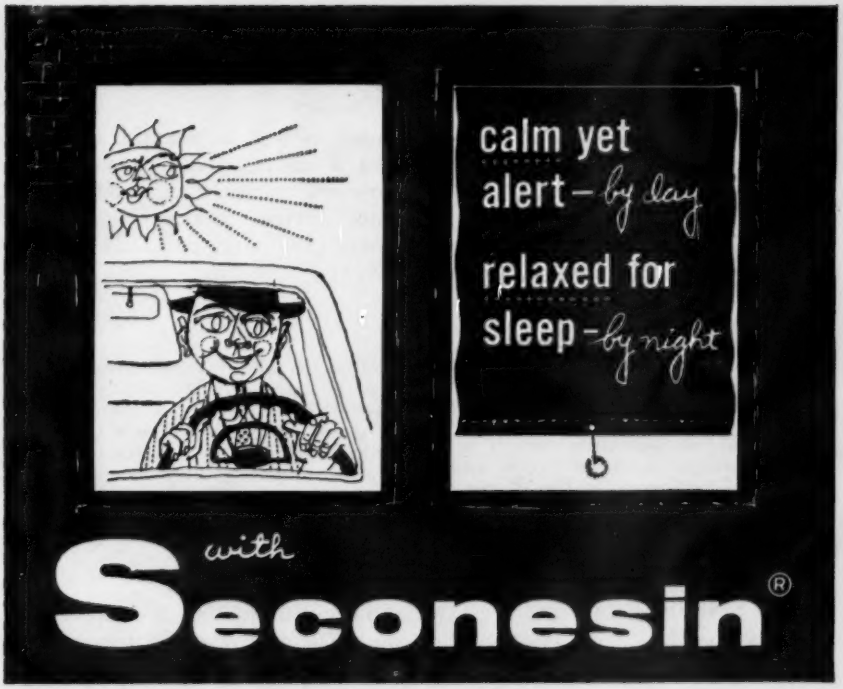
per kilogram of body weight a day to the more reasonable range of 5 to 10 mg. per kilogram a day is in order. The former range was set on a presumed chemotherapeutic basis which is not the entire basis of antibiotic action. The carbomycins were introduced with a fortuitously advocated lower dosage range and this is probably why their administration is not attended by serious gastrointestinal complications. After having employed the lowered tetracycline dosage schedule continuously over a period of five years, I have not encountered staphylococcal enteritis in a single patient.

3] Recognition that the administered antibiotic does not always get to the infecting organism and ignore the host, his intestinal flora, and his endocrine system will make for more rational antibiotic utilization. The distinctly pharmacodynamic effects of antibiotics have much potentiality for good, as well as for the evil cited by the symposium. There is now adequate evidence of why and how they may rechannel certain adaptation reactions, the original failure of which was equally responsible with infection for the patient's being given antibiotics. This is tacitly recognized in the burgeoning combination of definitive adrenocorticotherapy with antibiosis for the seriously or unresponsively ill.

ROBERT D. BARNARD, M.D.
Laurelton, N.Y.



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The new relaxant-sedative, **Seconesin,** *relaxes both mental and physical tensions* — yet leaves the patient mentally alert—not drowsy—able to cope with the day's needs and work.

Seconesin induces a marked feeling of well-being -- not the stimulated euphoria of amphetamine-like drugs, but a relaxed feeling of being pleasantly at ease.

A Higher Degree of Safety is assured with **Seconesin.** It acts rapidly — is eliminated rapidly — and is non-cumulative.

SAMPLES

Send for **SAMPLES** for patient or personal trial and detailed information.

Composition of SECONESIN: Lime-green, scored tablets each containing Mephenesin 400 mg. and Secobarbital 30 mg.

Dose: 1 tablet t.i.d., p.c.; 1 or 2 tablets on retiring if needed.

CROOKES LABORATORIES, INC. Crookes MINEOLA, N. Y.

Therapeutic Preparations for the Medical Profession

DURING THE MENOPAUSE, the relaxant-calmative action of **SECONESIN** often suffices to keep distressing symptoms under control.

Forensic Medicine

ARTHUR L. H. STREET, LL.B.

Prepared especially for Modern Medicine

PROBLEM: A maternity patient attributed laceration of the cervix and rupture of perineum to the doctor's failure to respond to telephone calls to attend her after promising to do so. Did the trial judge err in excluding evidence proving the doctor's failure?

COURT'S ANSWER: Yes.

The Michigan Supreme Court set aside a dismissal of the suit, but indicated that on a new trial the patient must prove not only that the doctor had promised to respond to the calls and did not, but also that the injuries were caused by the doctor's failures (131 N.W. 62).

PROBLEM: An Arkansas statute gives a lien to a physician, nurse, or hospital for charges for services against the proceeds awarded a patient in a suit against the negligent person causing the injury. Is the statute applicable when a settlement is reached out of court?

COURT'S ANSWER: Yes.

The Arkansas Supreme Court said that though a settlement agreement does not necessarily admit that there was negligence, the statute refers to the proceeds of a settlement as well as a court award. The law was designed to encourage physicians, nurses, and hospitals to render services to needy accident victims (197 Ark. 635, 124 S.W. 2d 813).

PROBLEM: The law requires owners or occupants of business or professional buildings to use reasonable care to maintain the premises in safe condition. Does reasonable care require that a medical clinic or a doctor use greater precaution for the safety of infirm patients than for healthy individuals?

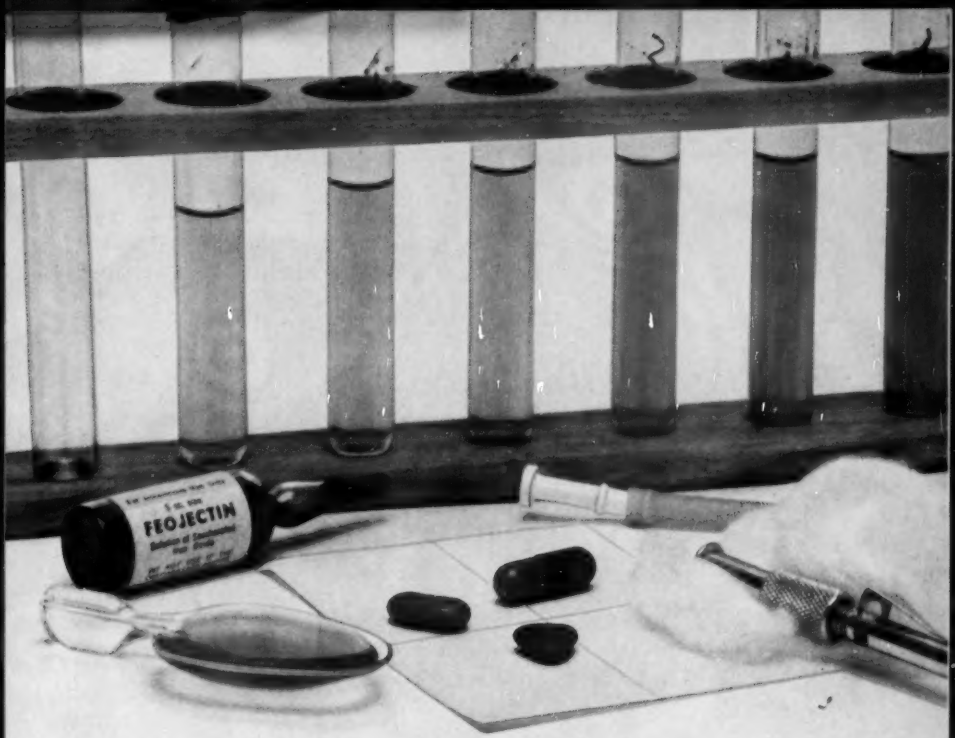
COURT'S ANSWER: Yes.

So decided the Alabama Supreme Court. The case involved a medical clinic with a slick, sloping cement sidewalk leading to the entrance (240 Ala. 427, 199 So. 840).

PROBLEM: At the hearing of a will contest based upon a claim that testatrix was not mentally sound when she made the will, a physician was asked several questions about the deceased's physical and mental condition. Did the probate judge properly delete the questions, since New York law forbids a physician to testify to confidential information acquired while treating a patient, unless the patient consents?

COURT'S ANSWER: Yes.

The New York Court of Appeals also decided that hospital records with statements and opinions concerning the mental condition of the testatrix were not admissible as evidence (120 N.E. 2d 777).



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Iron ($FeSO_4$)	10 mg. (100% MDR)
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Calcium ($CaHPO_4$)	145 mg. (19% MDR)
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Boron ($Na_2B_4O_7 \cdot 10H_2O$)	0.1 mg.
Copper (CuO)	1 mg.
Fluorine (CaF_2)	0.1 mg.
Manganese (MnO_2)	1 mg.
Magnesium (MgO)	1 mg.
Potassium (K_2SO_4)	5 mg.
Zinc (ZnO)	0.5 mg.

MDR—Minimum daily requirement for adults.

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PROBLEMS: A patient consulted Dr. X who recommended circumcision. The wife, acting for the patient, discussed with the doctor the feasibility of vasectomy instead and directed the doctor to arrange for this operation. Later, the patient told the doctor he would like to have "the operation" as soon as possible. Surgeon Y performed a vasectomy after Dr. X assured him that the patient and his wife had signed consent to the operation. The surgery was careful, skillful, and successful. [1] Was Dr. Y liable to the patient on a theory that the patient had agreed to circumcision, not vasectomy? [2] Was Dr. X liable for technical assault and battery? [3] Was Dr. X guilty of malpractice?

COURT'S ANSWERS: [1] No. [2] No. [3] Yes.

The Colorado Supreme Court said that the case was governed by a statute of the state permitting suit to be brought against a physician or surgeon for failure to exercise the skill that he possessed or implied that he had. A majority of the judges decided that Dr. X negligently failed to understand that the patient wanted circumcision. All of the judges agreed that Surgeon Y was in the clear because he relied upon Dr. X (266 Pac. 2d 1095).

¶ Dr. X talked to the patient about circumcision and later to the wife about vasectomy, and evidently assumed that the patient had acquiesced in the wife's oral authorization of the latter operation. Written authorization for an operation is not required by law. However, prudence dictated that Dr. X secure written consent, particularly since he assured Dr. Y that it had been obtained.—A.L.H.S.

PROBLEM: When damages for an alleged obstetric malpractice were claimed, did the trial judge properly refuse to permit nurses, who had treated patients of the doctor and of other physicians, to testify how defendant's treatment in the particular case compared with therapy given by other doctors in similar cases?

COURT'S ANSWER: Yes.

The New Hampshire Supreme Court thought that the testimony would not help determine whether therapy was negligent (51 Atl. 260).

PROBLEM: In trying a personal injury suit, the judge refused to permit a medical expert witness to illustrate roentgenograms through a view screen or illuminator. Did the judge rule correctly?

COURT'S ANSWER: No.

The Alabama Supreme Court said that using the device was not inherently improper. The evidence would help the jury determine the precise nature of the plaintiff's injuries (70 So. 2d 429).

PROBLEM: Defendant's wife and a guest were injured when the car, which he was driving, overturned. A bystander, with defendant's consent, called a doctor, who escorted the party to a hosptal. In the presence of defendant, the doctor made hospital arrangements for both injured women. Defendant remained silent. Was he liable for the doctor's services and hospital expenses?

COURT'S ANSWER: Yes.

The Supreme Court of Iowa decided that a verdict against defendant was strongly supported by the fact that defendant had not disclaimed responsibility when arrangements were made (222 N.W. 412).

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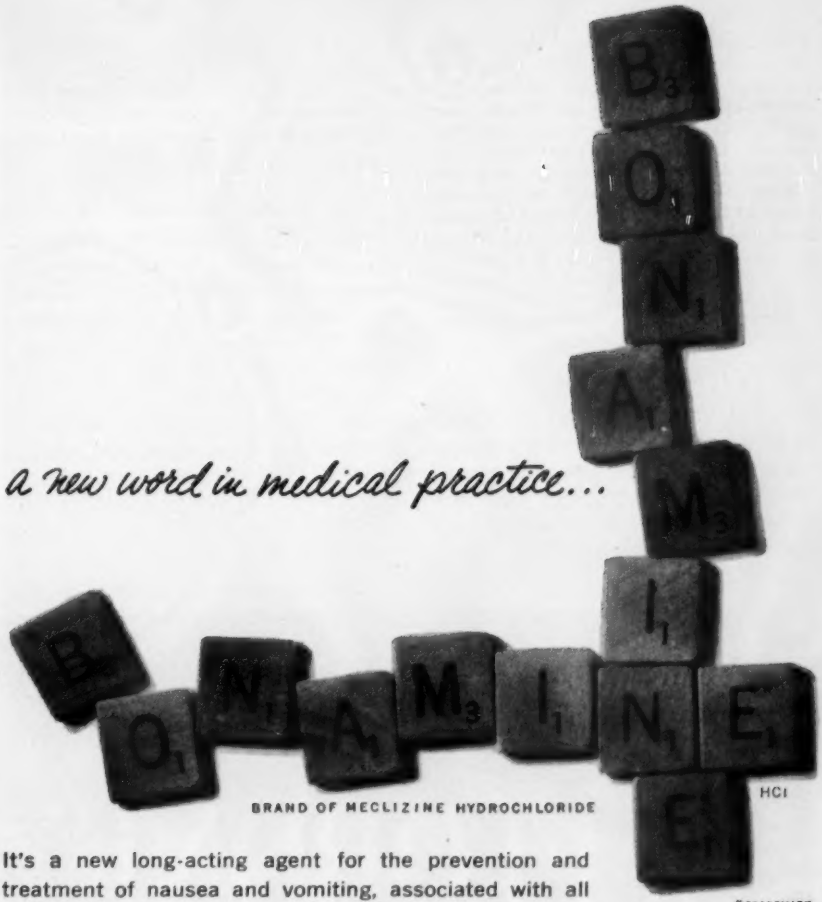

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PROBLEM: The duties of the medical superintendent of a state institution included control of the patients and prescribing treatment for them. The mother of a mentally deficient minor inmate drew the superintendent's attention to a spinal injury, but the doctor allegedly refused to examine the patient. The injury became permanent and handicapped the boy's movements. Could the superintendent or his surety escape liability for damages under the general rule of law that public officers cannot be held responsible for discretionary acts?

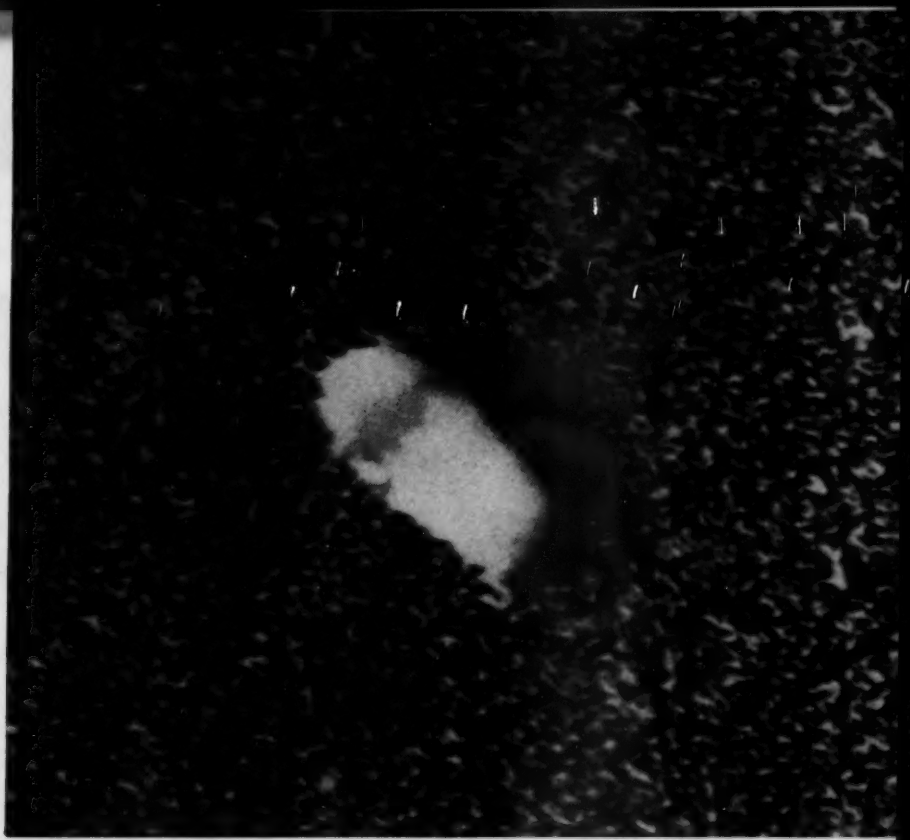
COURT'S ANSWER: No.

The United States District Court in Idaho decided that the superintendent was under absolute duty to examine the patient. He may not have been liable for faulty diagnosis (51 Fed. Supp. 433).

PROBLEM: A city board of health employed a physician to treat patients during an epidemic without fixing his compensation. Was the city liable for the reasonable value of the services?

COURT'S ANSWER: Yes.

The Maine Supreme Judicial Court said that no action taken by the board after the services were rendered could make the city liable for more or less than a reasonable fee. What the city had paid other doctors in previous years for similar services did not measure the value of the particular doctor's services. Circumstances concerning payment made to the other doctors may have differed, particularly as to the skill of the doctors (53 Atl. 984).



ELECTRON PHOTOMICROGRAPH

Klebsiella pneumoniae 29,000 X

Klebsiella pneumoniae (Friedländer's bacillus) is a Gram-negative capsulated organism commonly involved in various pathologic conditions of the nose and accessory sinuses, in addition to bronchopneumonia and bronchiectasis.

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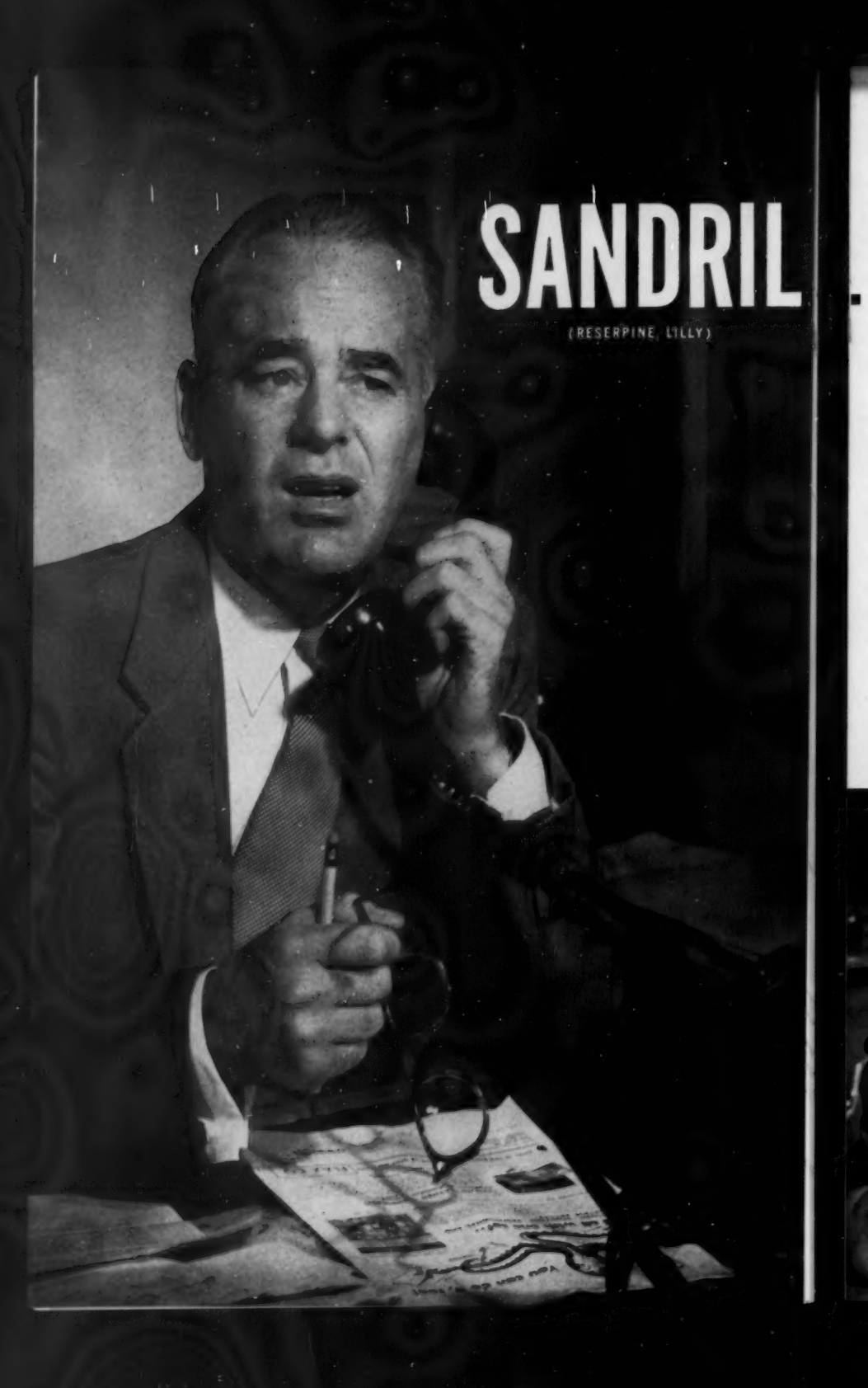
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Questions & Answers

All questions received will be answered by letter directed to the petitioner; questions chosen for publication will appear with the physician's name deleted. Address all inquiries to the Editorial Department, MODERN MEDICINE, *84 South Tenth Street, Minneapolis 3, Minnesota.*

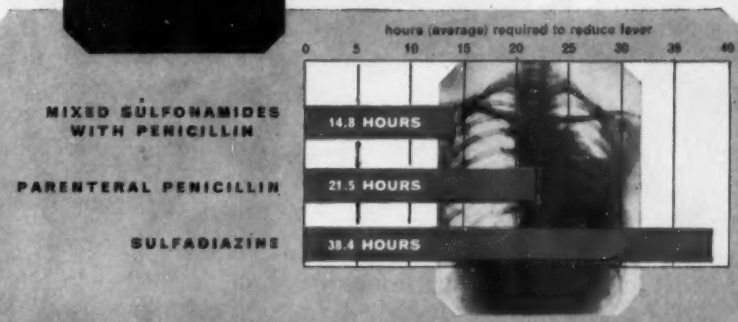
QUESTION: Two minutes after receiving an injection of 600,000 units of procaine penicillin in the arm, a patient became quite pale and complained of severe substernal pain and tingling in the extremities. Flushing of the face and erythematous blotching of the arms, neck, and thorax ensued. Angioneurotic edema, persistent rash, wheezing, or cyanosis was not observed, and the blood pressure remained stable at 110/60. Histadyl, 0.5 cc., was injected. The patient recovered in ten minutes with no sequelae. What is the cause of this reaction?
M.D., Texas

ANSWER: *By Consultant in Allergy.* Immediate and delayed anaphylactic or allergic reactions to penicillin are becoming more numerous. This is due to the widespread use of penicillin in all fields of medicine, repeated administration to the same individual, and the large doses now being given.

Penicillin sensitivity cannot be definitely revealed by skin testing. A positive cutaneous reaction is significant, but a negative one does not necessarily indicate that the person can safely use the antibiotic.

Simultaneous employment of epinephrine, antihistamines, or even ACTH and cortisone does not always prevent sudden or delayed reactions to penicillin.

combined action means faster patient recovery



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*Vollmer, H.; Pomerance, H. H., and Brandt, I. K.: New York State J. Med. 50: 2293, 1950.

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0.056 Gm. sulfamethazine	0.056 Gm.
0.111 Gm. sulfacetamide	0.111 Gm.
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MEDICAL NOTES ... *from* ABROAD

CHILE

Blood Clotting and Antibiotics. The administration of antibiotics, especially Terramycin, may interfere with blood coagulation factors, report Dr. Carlos Meza Arrau and Renee Armendaris of the University of Chile. The condition is apparently caused by disturbances in vitamin K production as a result of suppression of intestinal bacteria. Plasma prothrombin levels return to normal upon discontinuance of antibiotic therapy.

Rev. méd. Chile 82:14-18, 1954.

ENGLAND

Thrombosis in Women. The dangers of thromboembolic accidents are much greater after gynecologic operations than after deliveries, states Dr. J. Stallworthy of the University of Oxford.

Careful positioning of the patient on the operating table will avoid unnecessary trauma and stasis in the legs, the main source of thrombi and emboli. Atraumatic surgery, skilled anesthesia, good pulmonary ventilation, and early ambulation diminish the danger of pulmonary embolism. Previous thromboses, hypertension, existing anemia, a physical debility, local stasis, degenerating tumors, or septic processes are conditions warranting extreme caution.

Heparin treatment should be instituted at the first signs of thrombophlebitis.

Gynaecologia 138:127-134, 1954.

FRANCE

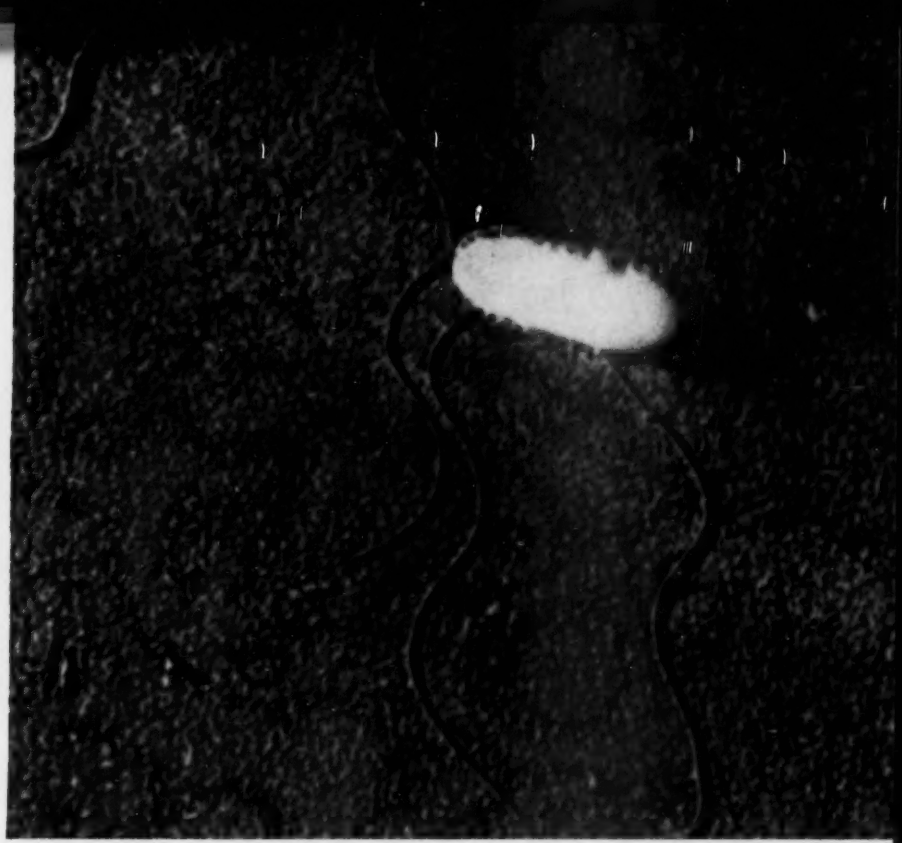
Therapy with Cobalt Salts. Local applications of cobalt salts are effective in the treatment of peripheral circulatory disturbances such as erythrocyanosis, erythromelalgia, acrocyanosis, acrodynia, and nocturnal muscle cramps.

Dr. Maurice Jacquet of Paris states that improvement may be obtained in severe cases by application of a solution of cobalt, benzene, and sulfonate. The subjective and clinically visible improvement may be confirmed by plethysmography.

Arch. mal. cœur 47:433-434, 1954.

FRANCE

Juvenile Delinquents. Left-handedness, in various forms, is a frequent finding among juvenile delinquents, state Drs. J. Bourret, D. Colin, and J. Tromeletus of Lyon who believe that sinistrality may be a factor in social maladjustment.



ELECTRON PHOTOMICROGRAPH

Salmonella paratyphi B 23,000 X

Salmonella paratyphi B (Salmonella schottmuelleri) is a Gram-negative organism which causes food poisoning • chronic enteritis • septicemia.

It is another of the more than 30 organisms susceptible to

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Upjohn

Inmates of a home for juvenile delinquents and of a reeducation center were subjected to a series of graphologic tests and frank or concealed left-handedness was revealed in 49%.

Acta med. Legal. et Social. 6:237, 1953.

FRANCE

Posttraumatic Venous Thromboses. In many instances, the relationship of thrombosis to preceding trauma is overlooked, report Drs. J. Lamy and C. Bourde of Marseille. Persistent pain in the injured area is usually attributed to posttraumatic residuals.

Phlebographic examination should be made whenever thrombosis is suspected. Heparin is apparently more effective in the treatment of existing thrombi than dicumarol derivatives.

Lyon chir. 49:474-477, 1954.

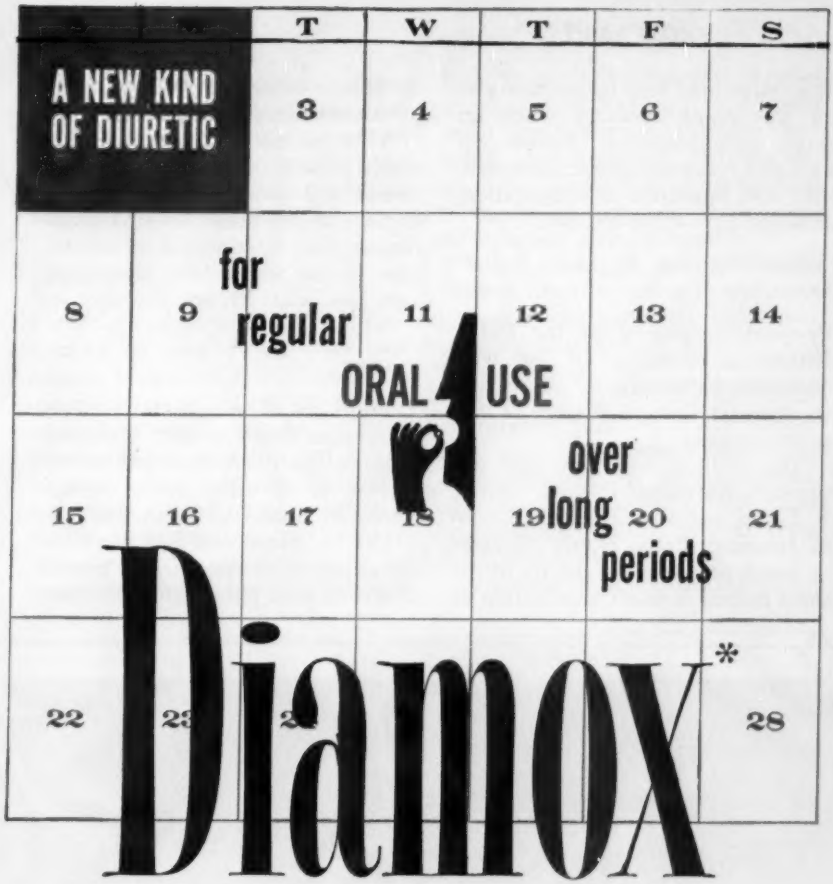
FRANCE

Subacute Bacterial Endocarditis. Splenectomy may prove helpful in certain types of subacute bacterial endocarditis, state Dr. G. Giraud and associates of Paris.

Principal indications for splenectomy are:

1] Prolonged resistance to antibiotics with repeatedly negative blood and bone marrow cultures but positive splenic cultures. This is usually accompanied by intermittent temperature spikes as well as persistently increasing splenomegaly, indicating active foci.

2] Moderate residual splenomegaly without febrile episodes but with a presistently high sedimentation rate and progressing hemolytic anemia.



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Cardiac patients may be maintained edema-free for many weeks or months.

Although developed primarily for oral administration, DIAMOX is now available for intravenous use where the oral route presents difficulties, or is impracticable.

Tablets (scored): 250 mg. Intravenous: 500 mg. vial.
Dosage: 1 to 1½ tablets or ½ to ¾ vial IV solution according to weight each morning or every other morning.

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Splenectomy may be necessary as an emergency measure when an acute intraabdominal process occurs as a result of splenic embolization with infarction or suppuration.
Arch. mal. cœur 47:410-416, 1954.

FRANCE

Pneumoplanigraphy of the Orbit. Periorbital injection of air with consecutive planigraphy allows better visualization of tumors of the orbital region.

The technic is simple and apparently harmless. Drs. G. Offret, E. Gilles, and F. Blanchot of Cochin Hospital, Paris, report 13 cases in which pneumoplanigraphy of the orbit helped in exact localization of the tumor otherwise not detectable by roentgen-ray examination.

After the air is injected, planigraphy should be performed in the lateral and anterior-posterior projections to determine the size, localization, and relationship of the tumor to the intraorbital structures.
Arch. opht. 14:352-379, 1954.

FRANCE

Therapy for Bronchial Obstruction. Enzymatic dissolution of bronchial plugs in nontuberculous pulmonary disease is of value alone or followed by bronchial aspiration.

Drs. A. Biron and L. Choay obtained excellent results with trypsin dissolved in a phosphate buffer ad-

ministered by aerosol in patients suffering from bronchiectasis, bronchial asthma, and acute atelectasis. Occasional allergic manifestations were the only side effects observed.
Presse méd. 62:719-720, 1954.

FRANCE

Vomiting in Infants. Vomiting from mechanical obstruction does not present diagnostic difficulties when the classical syndrome of pyloric stenosis is present, reports Dr. Paul Bertoye of the University of Lyon. In some cases, however, the initial symptoms are different: vomitus is not as constant, and roentgen-ray changes and the appearance of an epigastric mass become evident later. If or until surgery is decided on, the infant is given frequent and small feedings of milk formula combined with Nestargel. Dehydration requires parenteral administration of fluids and dextrose. Methylatropine may be added if necessary.

Other causes of mechanical obstruction with vomiting as the main symptom are duodenal malformations, diaphragmatic hernias, and bilocular stomachs.

Abnormal gastric motility or incoordinated function of the cardiac and pyloric sphincters may also cause vomiting. Thickened formula, phenobarbital, Largactil, and homatropine are of value in decreasing the frequency of vomiting.

Vomitus occurring during infec-

tious disease, toxicosis, and dehydration requires treatment of the primary disease. Main attention should be concentrated on restoration and maintenance of fluid, electrolyte, and acid-base balance.

Lyon méd. 192:3-21, 1954.

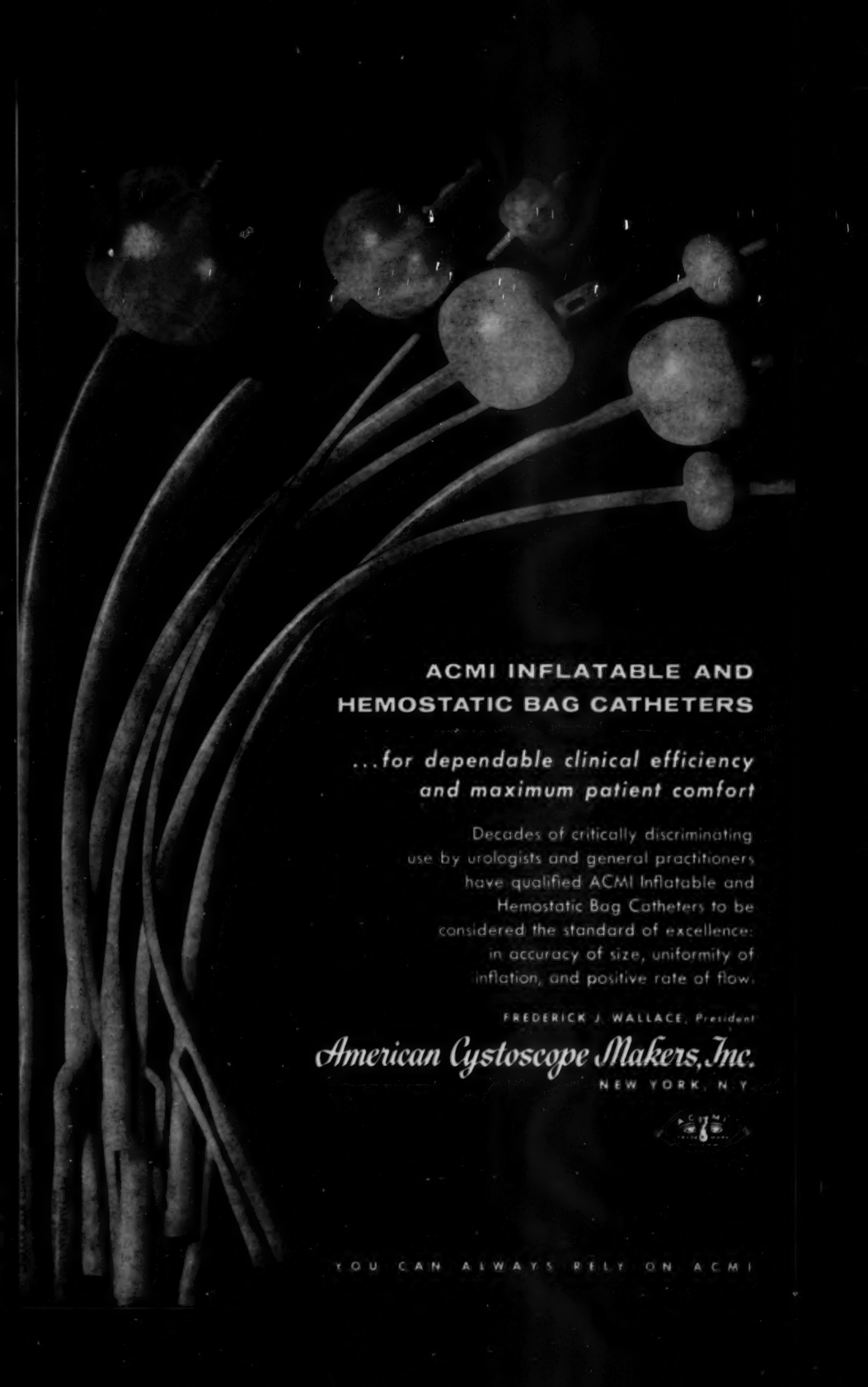
RUSSIA

Therapy for Ascariasis. Slow oxygen insufflation into the gastrointestinal tract is effective in treatment of ascariasis in children, state Dr. N. M. Zaytseva and associates of the First Moscow Medical Institute. The worms are immobilized as a result of the modification of the anaerobic conditions of the gastrointestinal tract.

A small gastric tube is introduced into the stomach and slow oxygen insufflation is begun. An hour after treatment the child is given a purgative and normal feeding can be resumed in about two hours. Therapy is repeated for three or four days and, if eggs are still found in the stool, another course can be started immediately. Occasional belching and slight abdominal discomfort were the only untoward effects noticed.

Oxygen treatment is especially indicated in debilitated children when drug therapy for ascariasis is not advisable.

Pediatryia 3:69-72, 1954.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GERMANY

Circulation Test. The acral circulation, because of lability, may be used as a measure of circulatory adjustment.

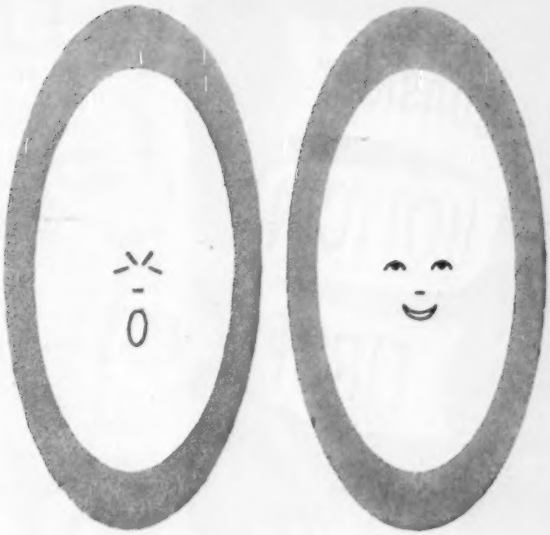
Dr. Gerhard Heidelmann of Halle reports that the thermolability of the hands usually parallels the adjustability of the peripheral circulation. Therefore, cooling or rewarming time of the hand or fingers indicates circulatory function.

Preliminary temperature readings are taken on one or several fingers of both hands. A handbath of 15° C. is given for five minutes and temperature readings are repeated every three minutes for half an hour. The mean finger-rewarming time is calculated from the several readings obtained from the end of the handbath until the finger temperature has exceeded 25° C.

Acta neuroveg. 8:211-218, 1953.

GERMANY

Nasal Scleroma. Chronic rhinitis and similar conditions of the nose and sinuses are often confused with nasal scleroma. However, positive diagnosis may be made by pathologic demonstration of Mikulicz's cells or scleroma bacilli in the nasal secretions, reports Dr. K. H. Schönherr of the Kreis Hospital, Ludwigs-



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burg. Russell's bodies and colloid cells, often considered pathognomonic of scleroma, have been seen in other conditions.

Although effective in the therapy of scleroma, streptomycin can produce cochlear or vestibular injury; Terramycin, just as effective against the pathogen in vitro as streptomycin, is more effective because higher concentrations of the antibiotic arise in nasal secretions and the side effects are less severe.

Arch. Ohren- Nasen- u. Kehlkopfh. 164:41-49, 1953.

GERMANY

Diagnosis of Glaucoma. Subconjunctival injection of Priscoline aids early diagnosis of glaucoma, states Dr. W. Leydhecker of the University of Bonn.

The test consists of a series of Schiøtz tonometric readings taken before and after the injection of Priscoline. Glaucoma is suggested by increased intraocular tension.

Usually, tension returns to the initial level within ninety minutes after the test. The only untoward effect is slight conjunctival congestion which subsides spontaneously after about twenty-four hours.

Klin. Monatsbl. Augenh. 125:57-61, 1954.

GERMANY

Treatment of Malignant Tumors. Preoperative irradiation of easily accessible tumors is valuable in improving the final results. Dr. Hans-Joachim Fiebelkorn of the University of Marburg-Lahn stresses that in preoperative roentgen-ray therapy, higher doses can be used because scar-free healthy tissues are more resistant. The greater initial sensitivity to radiation enables

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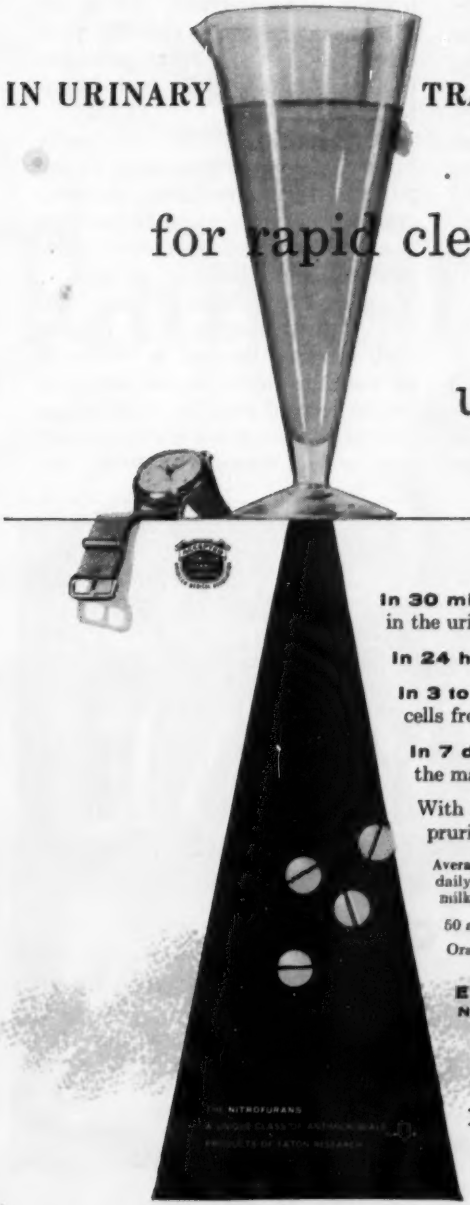
IN URINARY TRACT INFECTIONS

for rapid clearing of the urine



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50 and 100 mg. tablets.

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a temporary arrest of regional spread, better delimitation of the tumor, and easier removal on subsequent surgery. The chance of dissemination of cancer cells during surgery is also decreased.

Similar good results from preoperative roentgen-ray treatment are described in the management of thyroid malignancies and kidney tumors in children.

Med. Klin. 49:368-371, 1954.

GERMANY

Polyneuritis. A lack of vitamin B alone is no longer considered a cause of polyneuritis. Avitaminosis must be combined with a protein deficiency, according to Dr. J. Steger of the University of Würzburg.

Causes of polyneuritis include toxicity associated with general infections and fever, side effects of diphtheria, typhoid fever, intoxication by heavy metals, and dysentery.

Polyneuritis affects the entire body. This fact is illustrated by the patient's thirst, weakness, dry mucous membranes, elevated nonprotein nitrogen, and elevated erythrocyte sedimentation rate.

Treatment includes strict bed rest and a high-calorie, high-vitamin diet. Physical therapy is employed to avoid thrombosis and ankylosis and to rebuild muscles. Administration of vitamin B is a useful adjunct.

Deutsche med. Wchnschr. 79:580-582, 1954.

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GERMANY

Serum Cholinesterase Levels. Routine determination of the serum cholinesterase levels of all patients being prepared for major surgery is recommended by Drs. F. Holle, K. H. Stahm, and W. Teufel of the University Surgical Clinic, Würzburg.

A study of the postoperative courses of 28 patients reveals that prognosis is poorer when the preoperative esterase level is below 90 or above 125. When the level is below 90, the patient should be given sex hormones, vitamins B, C, and E, analeptics, and transfusions preoperatively. When the level is above 125, an autonomic-hormonal failure may occur because of autonomic dysfunction.

Precautions against a circulatory collapse and heart failure are especially important, and anesthesia should be administered cautiously.

Anaesthesist 3:113-116, 1954.

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The procedure does not improve the outflow of the aqueous humor but decreases production.

Ann. ocul. 187:318-332, 1954.

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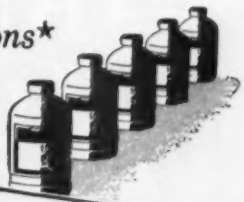

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★	Travert 10%-Electrolyte No. 2	57.0	25.0	—	50.0	25.0	—	6.0	12.5	Travert 10%	Any
	Ammonium Chloride 2.14%	63.0	17.5	—	150.5	—	70.0	—	—	Travert 10%	Any
	Darrow's	—	—	—	400.0	—	400.0	—	—	—	IV
★	M/6 Sodium r-Lactate	121.0	35.0	—	103.0	53.0	—	—	—	—	Any
★	Travert 10%-Potassium Chloride 0.3% in Water	167.0	—	—	—	167.0	—	—	—	—	Any
	Travert 10%-Potassium Chloride 0.3% in 0.45% NaCl	—	40.0	—	40.0	—	—	—	—	Travert 10%	Any
		77.0	40.0	—	117.0	—	—	—	—	Travert 10%	Any

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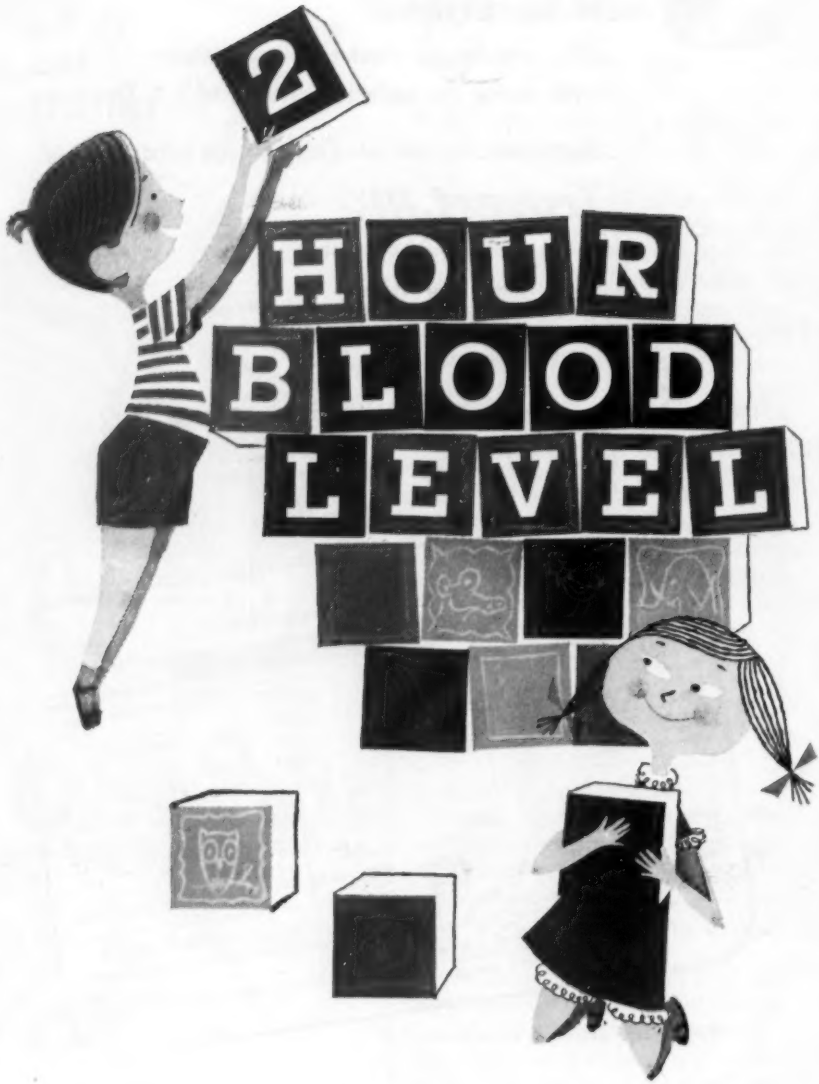
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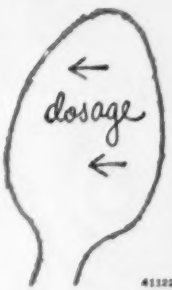
25-lb. child	50-lb. child	100-lb. child
½	1	2
teaspoonful	teaspoonful	teaspoonfuls

Every 4 to 6 Hours



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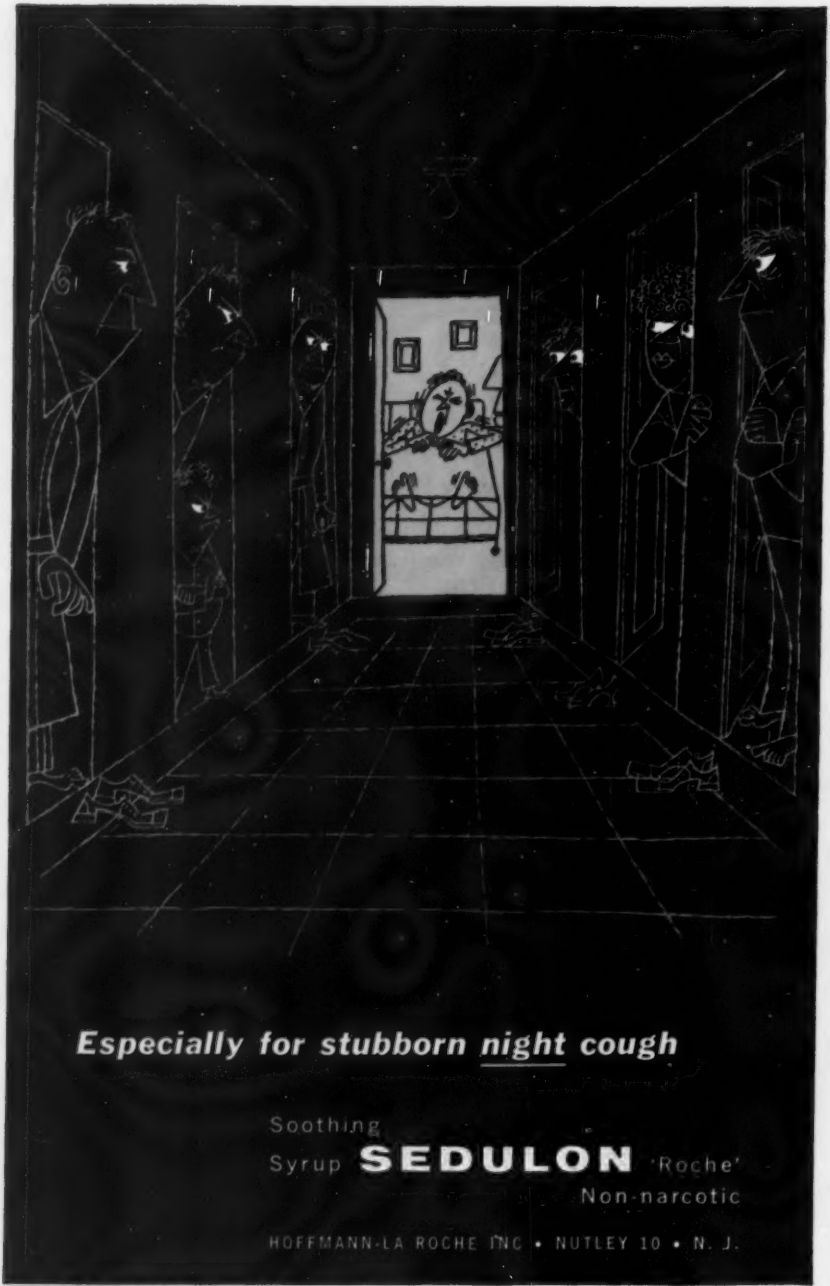

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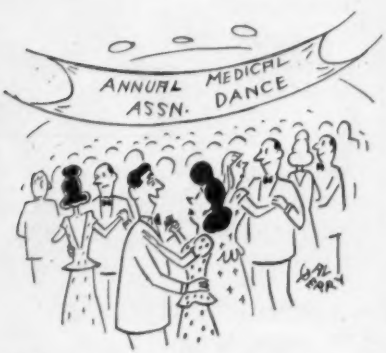
Washington LETTER

Federal Health and Medical Spending Increases

THE period between the sessions of Congress is productive of miscellaneous reports and surveys. An example is the summary of federal health and medical budgets compiled by the American Medical Association's Washington office.

This report reveals that even under an administration dedicated to the dual philosophy of economy and decentralization of government, spending for health and medical matters makes up a large section of the federal budget. The totals involved are more significant when it is realized that the current budget is the first one that could not be attributed at least in part to the Truman administration. Most of the groundwork for the previous budget had been completed before the Eisenhower experts could be dropped into the key posts in the Budget Bureau and agencies. But the Eisenhower people were in control of this one from the start.



"Let's talk about you. Ever had scarlet fever, mumps, convulsions?"

For the current fiscal year, the various federal agencies, departments, and commissions expect to spend over $2 billion. This amount is equivalent to about 10% of the entire federal budget, excluding defense and security costs, but with Veterans Administration costs included. The AMA report points out that this is 8% more than the $1.7 billion earmarked for the same work the year before. Although this increase cannot be compared with last year's increase, the total unquestionably is well in excess of that for the last full fiscal year of the Truman administration. In other words, the federal government is spending more and more for health and medical programs every year. A change of administration—or of congressional control—apparently makes little difference.

Perhaps more meaningful is the fact that of the total spent by the American public for all types of medical-dental-drug bills, including such drugstore sundries as aspirin

and baby talcum, the federal government spends one-sixth.

By departments, here are some of the figures for medical-health spending:

Defense. An increase of more than 50% has been made, from about half a billion dollars last fiscal year to almost $850 million. Actually, 70% of the increase is attributable to operating and construction costs from last year that were not isolated under the bookkeeping system then in use by the department. This 70% was not used in calculating the over-all 8% increase.

Veterans Administration. During last year $747,415,264 was spent, this year $748,738,563. The increase would have been greater, except for the fact that the expensive construction program authorized after World War II is almost completed. In other words, medical care costs in VA continue to rise, but the new hospitals have been paid for.

Health, Education, and Welfare. This department also shows only a modest increase of $50 million, or about 12%. The totals are $340 million for last fiscal year and $395 million for the current fiscal year. One new plan for health centers, clinics, and so on is authorized $60 million by law, but because the project will be slow in starting, only $23 million has been appropriated for this fiscal year. If more can be used, managers of the program will go before the next Congress and

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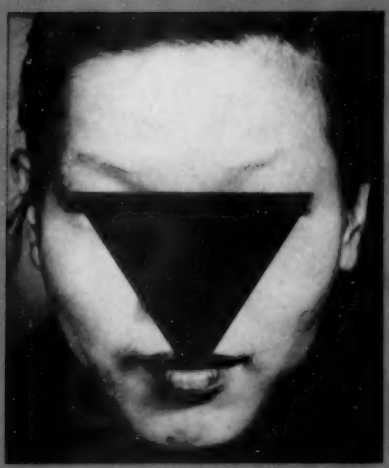
Condition before treatment with 0.2 per cent Florinef Ointment



Condition twelve days after treatment

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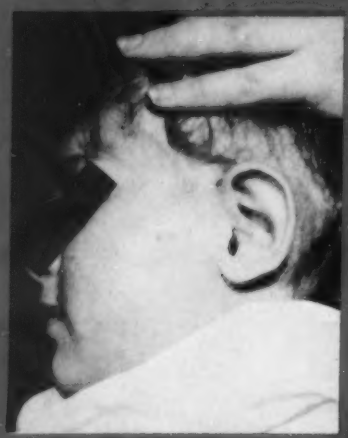
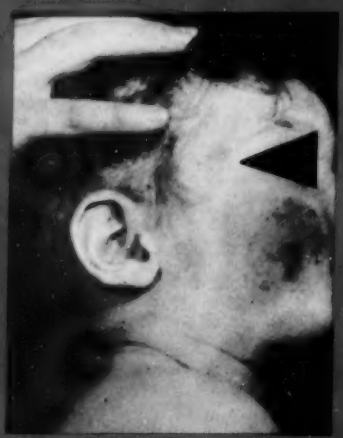


Nine days after Florinef Lotion 0.2 per cent was applied to left side of face



Nine days after hydrocortisone lotion 0.2 per cent was applied to right side of face

SQUIBB *a name you can trust*

make requests. Another expanded project, for vocational rehabilitation, carries only a modest increase for this fiscal year but commits the federal government to more and more spending far into the future.

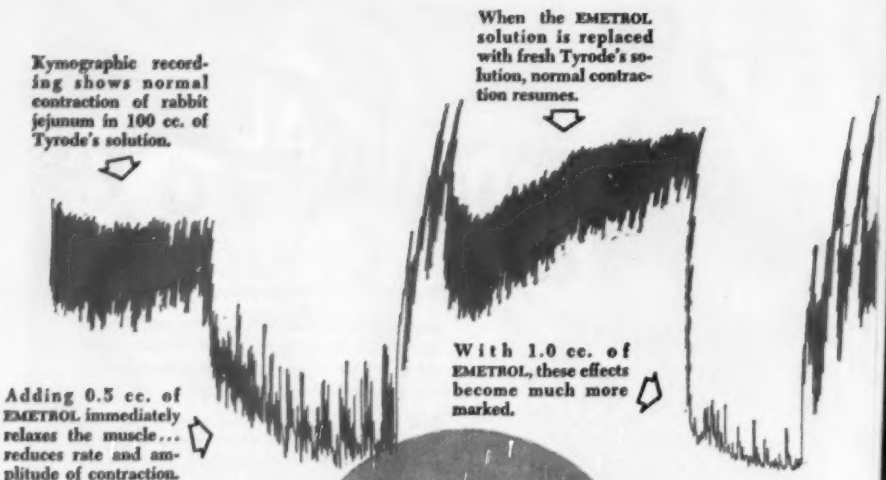
Federal Civil Defense Administration. The increase here is under 10%, from $2.6 million to $2.8 million, but again a spending trend is apparent. For years the federal government has tried to induce states and cities to build up their own stockpiles of medical supplies for use in catastrophes. This year the effort was all but abandoned. Congress appropriated only $2.5 million for matching the grants to states and cities for stockpiling but voted to use $26 million to buy medical supplies for all-federal stockpiles, which will be dispersed to provide the protection the states were reluctant to pay for themselves.

In all, 21 agencies, departments, and commissions are listed in the AMA report as conducting medical care, research, or other health-medical programs. Few of them show decreases. The Department of State, for example, drops from $14 million to $12 million but almost the entire decrease is explained by a cut in the government's contribution to the United Nation's Children's Fund, which has finished its postwar emergency job and is embarked on a long-range program to which the United States will give

proportionately less. But the United States is not leaving the international health field; in addition to contributing $3 million for World Health Organization, the United States is spending $25 million through the Foreign Operations Administration, mostly for technical medical assistance to underdeveloped countries.

When next year's budget report is prepared, at least two new and large health items almost certainly will be included. Both will be the type that, once started, will have to be continued indefinitely. One is a program of federal contributions to health insurance for government employees. This will cost about $60 million the first year and progressively more thereafter. The other is a plan for better and more uniform medical care for dependents of military personnel. This, the Defense Department estimates, will cost at least $67 million extra for the first year and more later. The administration is determined to get both these projects through Congress next year.

"Junior has a tooth!"



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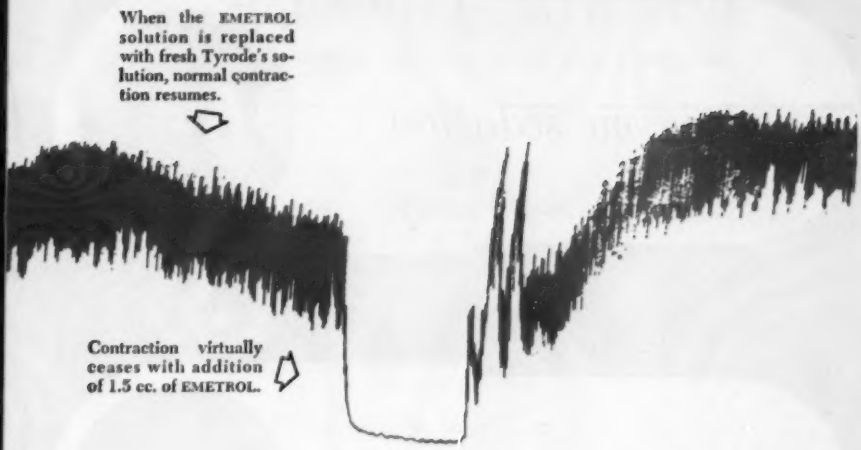
EMETROL Phosphorated Carbohydrate Solution permits effective physiologic control of functional nausea and vomiting—without recourse to antihistaminics, sedatives, or hypnotic drugs.

Pleasantly mint flavored, EMETROL provides balanced amounts of levulose and dextrose in coacting association with orthophosphoric acid, stabilized at an optimal, physio-

Kinney SAMPLE AND LITERATURE



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MODERN MEDICINE
THE JOURNAL OF DIAGNOSIS AND TREATMENT

THE EDITOR'S PAGE

by WALTER C. ALVAREZ, *Editor-in-Chief*

Illness from Being Caught in a Trap

Through the years I have seen a few hundred persons whose illness seemed to be due purely to what a psychiatrist calls a situational neurosis but which I like to call disease due to the feeling of having become caught in a trap. Obviously, many persons caught in traps remain happy and strong. Others, who haven't such strong personalities, fail to adjust, and severe neuroses develop.

A sad feature of this disease is that physicians often fail to draw out the story of great unhappiness, and hence do not make the correct diagnosis. For instance, a sad-eyed Irish girl came complaining of headache, backache, stomach-ache, insomnia, and a great sense of fatigue. When after many examinations the girl was about to be dismissed with the usual diagnosis, "There is nothing the matter with you," I happened to see her. I learned that she was supporting her mother and her good-for-nothing, hard-drinking father. Four months before, when her illness had become acute, her fiancé had decided not to wait any longer. On his small salary he could not hope to support four adults, and since the girl would not abandon her mother, it was useless for him to wait around any longer. Accordingly, he departed, and the girl was left to lie awake night after night crying her heart out. So long as she felt that she could never respect herself again if she deserted her mother, all I could do was to express my sympathy and give her some medicine to help her sleep.

Several of the women I have seen with severe anorexia nervosa were caught in traps of some kind. Sometimes the physician can get the patient out of the trap, but in many cases there

is no way of escape compatible with self-respect and honor. Sad are those cases in which a person is trapped by some deformity, defect, constitutional inadequacy, or bad nervous heredity. One fine looking woman of 35 was trapped by vestiges of the congenital syphilis bequeathed her by her *bon vivant* father. She had had many beaux but none had loved her enough to take her after she had confessed her handicap and expressed her unwillingness to bear children.

Of course there are thousands and thousands of women who are trapped by unhappy marriages; many of them feel that they must stay with the unloved husband, at least until he finishes helping with the education of the children.

Many a man gets trapped perhaps by an alcoholic or crippled wife or some sort of marital tangle. Every physician knows many men who are trapped by positive Wassermann reactions which will never quite change to negative. Other men are trapped by uncongenial jobs. I remember well such a man who so hated the business he was in that whenever he had to chide an employee for doing some foolish thing he worked himself up into a rage which ended with a spell which suggested an acute abdominal condition. He had had four exploratory operations, none of which had shown anything wrong.

I have seen divinity students who found themselves trapped in very unhappy situations. They had found that they didn't want to go on into religious orders, but they hadn't the heart to tell their mothers who had skimped and saved and who had vowed the sons to God and his service.

Obviously in these cases there often is little that can be done in the way of treatment, but this is much better than treatment which consists of much medication and perhaps an operation.

Better Handling of Drug Addicts

It has been suggested that in every community a few trusted physicians be selected to care for persons addicted to morphine. The doctors would help the addicts to cut down the dosages used and, by supplying them with the drugs at cost, would ruin the business of the peddlers and gangsters who are now fattening from the racket. These recommendations of Dr. Hubert S. Howe should certainly be studied.

Special Article

The Hemolytic Syndromes

CLAUDE-STARR WRIGHT, M.D.*
Ohio State University, Columbus

Prepared for Modern Medicine

HEMOLYTIC syndromes have all too frequently been regarded with a fatalistic attitude by the physician. This approach is no longer justifiable with the advances that have been made in clarifying the mechanisms, diagnosis, and treatment. It is our purpose to discuss the hemolytic syndromes as relatively easily diagnosable and in many instances effectively treatable. As with all disease, an understanding of the pathologic physiology aids in diagnosis and treatment.

RESUMÉ

Erythrocytomorphosis includes 3 phases: [1] red blood cell production and maturation in the bone marrow; [2] the circulating physiologic erythrocyte; and [3] its destruction and the results thereof.

Hemolytic anemia results from a shortened survival of the circulating erythrocytes to the degree that the activated bone marrow reserve is unable to satisfactorily maintain normal circulating levels.

Survival of erythrocytes is dependent on [1] the inherent stability of the erythrocyte per se and [2] the environment to which it is subjected.

Mechanisms of abnormal erythrocytic destruction are intravascular agglutination, intravascular lysis, phagocytosis, and intravascular fragmentation.

Effective therapy requires accurate diagnosis.

ERYTHROCYTOMORPHOSIS

Erythrocytomorphosis, or the life cycle of the red blood cell, includes 3 phases: [I] red blood cell production and maturation in the bone marrow; [II] the circulating physiologic erythrocyte; and [III] destruction of the erythrocyte and the results thereof (Fig. 1).

Normal

Detailed bone marrow maturation is out of the scope of this discussion. At the termination of the marrow erythrocytic production line, reticulocytes are delivered into the peripheral blood and normally make

*From the Department of Medicine, Ohio State University, Columbus.

up 0.5 to 1.5% of the circulating red blood cells. Accurate determination of peripheral erythrocytic survival has been the most important of recent contributions. Isoerythrocytic survival studies utilizing differential agglutination technics (Ashby) have been the most widely used.[1, 2, 3] The use of radioactive chromium-tagged erythrocytes allows even autoerythrocytic survival determinations.[4] By these methods, it has been estimated that the cell is physiologically active in the peripheral circulation for one hundred and nine to one hundred and twenty-seven days.[1]

It is not known exactly how normal red blood cells are destroyed. However, some inferences may be drawn from information regarding the disposal of pigments after destruction. Hemoglobin is broken down by the reticuloendothelial system to bilirubinglobin and iron. The normal plasma bilirubinglobin is 0.3 to 0.7 mg. per cent. The bilirubinglobin, freed from its protein component by the liver, is excreted as bile pigments into the intestines, where further chemical changes occur. It is represented in the feces as urobilinogen and is excreted at a rate of 50 to 200 mg. daily. Reabsorbed urobilinogen is partially excreted in the urine at a rate of 1 to 2 mg. a day. Free hemoglobin in the plasma is normally present only

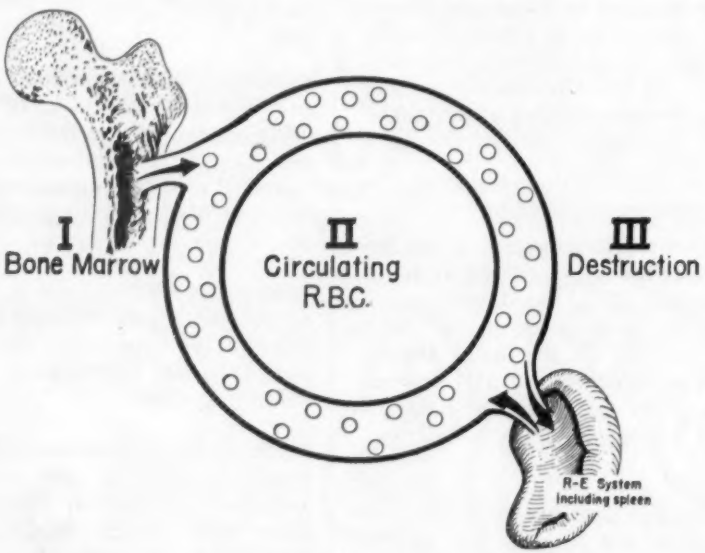

Fig. 1. Erythrocytomorphosis, or the life cycle of the red blood cell, includes 3 phases. (I) Red blood cell production and maturation in the bone marrow. (II) The circulating physiologic erythrocyte. (III) Its destruction. Normally, the second phase lasts about one hundred and twenty days.

in minute amounts of 2 to 5 mg. per cent. The relative hemoglobin-bilirubinglobin plasma values indicate the degree that the reticuloendothelial system has participated in the erythrocytic destruction.

Abnormal

Hemolytic anemia results when the survival of the circulating erythrocytes is so shortened that the activated bone marrow reserve is unable to satisfactorily maintain normal circulating levels. This compensatory activity is rather remarkable and has been estimated to be almost sevenfold.[5] It can be estimated in several ways: [1] roughly, by direct marrow examination, increase of reticulocytes in the peripheral blood, or both, or [2] more exactly, by newer technics such as the radioactive iron turnover rate.[6, 7, 8]

The survival of erythrocytes is dependent on the inherent stability of the erythrocytes and the environment to which they are subjected.

Genetically abnormal erythrocytes are due to maturation defects. These are classified as intrinsic abnormalities and are generally manifested in chronic hemolytic syndromes. These are the erythrocytes of [1] hereditary spherocytosis, [2] sicklemia, [3] thalassemia, [4] hereditary nonspherocytic syndrome, and [5] paroxysmal nocturnal hemoglobinuria (not familial).

The defect in sicklemia is due to an abnormal hemoglobin. This has led to further study of hemoglobin types, 6 of which have been recognized: adult (A), fetal (F), sickle (S), and hemoglobins C, D,[9] and E.[10, 11] New clinical syndromes resulting from homologous and heterologous expression of these hemoglobins, as well as combinations, are rapidly accumulating.[30]

These circulating erythrocytes characteristically show a short survival. They are destroyed in exponential fashion as compared to a linear destruction for normal cells. The normal marrow reserve is able to compensate until the average red blood cell survival is diminished to fifteen to twenty days.[5, 12] This is true for both inherently defective cells formed in the marrow and for those that become defective after being released into the peripheral circulation. These so-called environmental or extrinsic factors include the following situations:

- Immunologic mechanisms
  1] Iso- and autoagglutinins, complete, incomplete,[13] and thermal[14]
  2] Iso- and autohemolysins and luetic cold hemolysins
- Physical and chemical agents
  Burns, snake venom, hypotonic solutions, fava beans, drugs such as quinine, derivatives of benzene and toluene, and compounds containing heavy metals
- Microorganisms
  Plasmodia, Bartonella, Welch's bacillus, *Streptococcus,* viruses (as in Newcastle disease)
- Symptomatic or secondary acquired hemolytic anemia (secondary dyssplenism), often associated with the following splenomegalies:[15, 16]
  1] *Congestive*—Banti's or Felty's syndrome
  2] *Infiltrative*—Gaucher's disease, xanthomatosis

3] *Hemoblastic*—lymphatic (fairly frequent), myelogenous, and monocytic leukemias
4] *Inflammatory*—syphilis, tuberculosis, moniliasis, Boeck's sarcoid, Hodgkin's syndrome, and infectious mononucleosis
5] *Neoplastic*—giant follicular lymphoblastoma, multiple myeloma, and hemangioma
6] *Myeloid metaplasia*—associated with myelofibrosis

- Idiopathic acquired hemolytic anemia
  Incomplete agglutinins in 80%
  Pathologically associated with congestive splenomegaly

The mechanisms of abnormal erythrocytic destruction include [1] intravascular agglutination, [2] intravascular lysis, [3] phagocytosis, and [4] intravascular fragmentation. There is probably no pure mechanism; the interplay and overlapping of several have been emphasized by Castle in his concept of erythrostasis.[17] The weak agglutinins, frequently found in many hemolytic states, are alone not sufficient to cause red blood cell destruction. However, they can cause erythrostasis and concentration in the capillaries of various organs, particularly the spleen. During this so-called in vivo incubation, there is an excellent opportunity for modification of the cell. This modified cell is then more susceptible to phagocytosis[18] or intravascular lysis. Lysis, however, may be more direct by [1] immune factors, as in paroxysmal cold hemoglobinuria of the luetic type, [2] chemicals, or [3] osmotic changes as seen when distilled water is used for cystoscopy.

Accumulating evidence supports erythrophagocytosis by macrophages as a major mechanism, particularly as a means of removing inherently defective cells or cells modified by splenic erythrostasis or infectious, chemical, immune, or physical agents.

Intravascular fragmentation has not been as convincingly demonstrated in vivo as in vitro. However, the in vivo effect is seen after extensive burns as budding of red cells, with the production of asymmetric daughter cells.

The mechanism, degree, and speed of the red blood cell breakdown determine the nature of the hemoglobin degradation. For instance, the primary intravascular lytic process releases the hemoglobin into the circulation. Hemoglobin breaks down into hematin and globin. Hematin combines with albumin to form methemalbumin, which is moderately toxic. When the plasma hemoglobin is elevated to over 130 mg. per cent, hemoglobinuria is initiated.

When an intact erythrocyte is removed by phagocytosis, the macrophage releases bilirubinglobin, in which event increased erythrocytic destruction is manifested by elevation in the bilirubinglobin, fecal urobilinogen, and urine urobilinogen.

THE CLINICAL PICTURE

The broad clinical spectrum of hemolytic disease extends from the acute hemolytic crisis, which may be associated with pyrexia, acute malaise, headache, precordial distress, backache, and varying degrees

of jaundice, to a relatively benign subclinical state which may cause no subjective difficulty but is detected by routine examination.

Of course, there are the symptoms referable to the anemia per se. Splenomegaly is frequent. Hemolysis over a long period may result in pigment stones within the gallbladder, which may initiate a complicating biliary disease. Resistant leg ulcers are particularly common in sickle-cell anemia and thalassemia. Hemochromatosis may occur after many transfusions. Recent evidence suggests that an increased iron absorption in chronic anemias may be a contributing factor in hemochromatosis.[19, 20, 21] Upon occasion a secondary dyssplenism for platelets or granulocytes may be superimposed on the hemolytic phenomenon.[15, 16] This would be clinically manifested as purpura or increased susceptibility to infection.

DIAGNOSIS

A practical laboratory approach to the differentiation of most hemolytic syndromes is outlined (Fig. 2).[22] The family and personal histories are particularly pertinent in establishing leads. However, this hypothesis assumes that the history, physical examination, (I) peripheral blood, and (II) bone marrow studies do not reveal the specific diagnosis but rather indicate a hemolytic process. Therefore, (III) the osmotic fragilities are considered.[23]

Thalassemia, sicklemia, and iron-deficiency* erythrocytes show decreased osmotic fragilities, while hereditary spherocytosis and acquired hemolytic anemia—including idiopathic and symptomatic types—show increased osmotic fragilities. To further differentiate hereditary spherocytosis from acquired hemolytic anemia the incubated osmotic fragilities† are investigated (see caption, Fig. 2). In the incubated mechanical fragility, test erythrocytes from hereditary spherocytosis have greatly increased fragility after incubation, but cells of acquired hemolytic anemia show only a moderate increase.[23] Rarely the incubated mechanical fragility will show differences not elicited with the osmotic test.

If the diagnosis cannot be made at this stage, the following immunologic tests are done:

1] Examination for incomplete antibodies is made with [a] the trypsin red blood cell test which detects incomplete antibodies in the serum and [b] the anti-human globulin test (Coombs) which reveals antibodies on the red cell.[13] An indirect modification of the anti-human globulin test detects incomplete antibodies in the serum[23] but is not as sensitive as the trypsin test. These tests are positive in 80% of acquired hemolytic anemias. The presence of incomplete antibodies has been suggested as a means of differentiating acquired hemolytic anemia from hereditary spherocy-

*Anemia with reticulocytosis from chronic blood loss may erroneously be interpreted as a hemolytic phenomenon. This characteristic of decreased osmotic fragility may thus be of clinical importance.

†Erythrocytes from sterile defibrinated blood are incubated at 37° C. for twenty-four hours and tested in a hypotonic system.

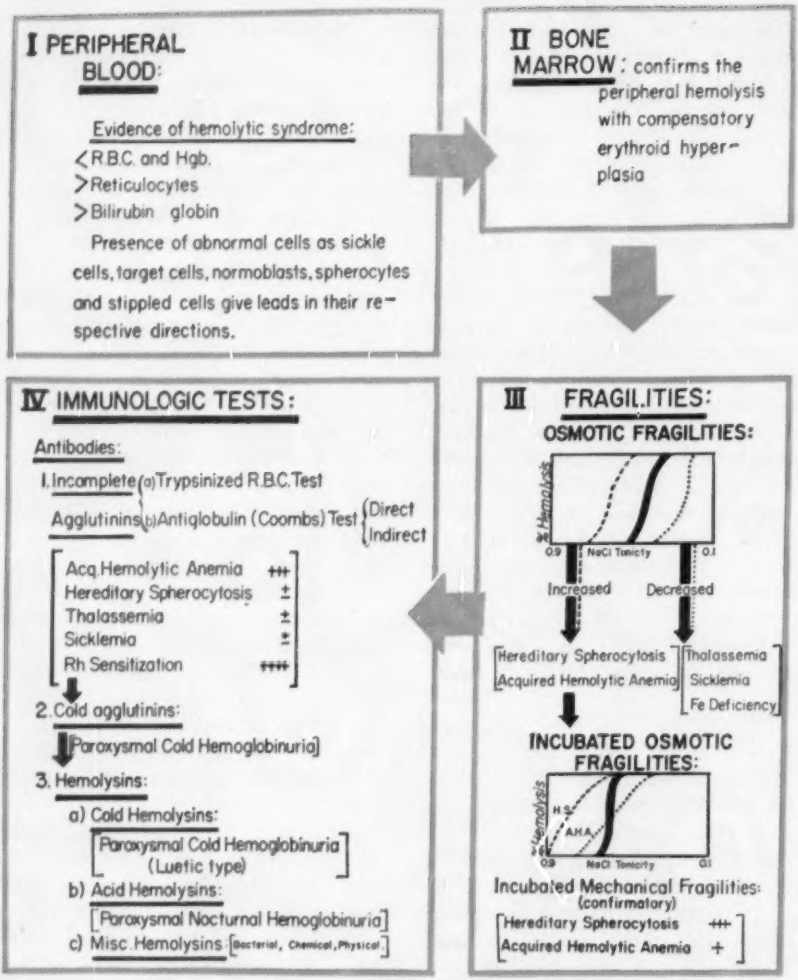

Fig. 2. Laboratory differentiation of hemolytic syndromes. Peripheral blood (I) and the marrow (II) indicate a hemolytic process. Osmotic fragilities (III) differentiate hereditary spherocytosis and acquired hemolytic anemia on the one hand from thalassemia, sicklemia, and iron-deficiency anemias on the other. Hereditary spherocytosis (H.S.) and acquired hemolytic anemia (A.H.A.) are differentiated from each other by the incubated osmotic and mechanical fragilities. The cells from hereditary spherocytosis show a pronounced increase in fragility (broken line). The cells from acquired hemolytic anemia show less change and usually assume an asymmetric curve (dotted line) which may cross over the normal incubated control. If the diagnosis is still not evident, immunologic tests (IV) are done.

tosis; however, there may be incomplete antibodies in up to one-third of hereditary spherocytoses. Incomplete antibodies are occasionally present in thalassemia and sicklemia.[13] These tests are not specific in the differential diagnosis of these entities, but contribute to the accumulated evidence in establishing the diagnosis.

2] Paroxysmal cold hemoglobinuria of the cold agglutinin type is recognized by demonstrating these antibodies in significant titers.[14]

3] Cold hemolysins associated with syphilis establish paroxysmal cold hemoglobinuria by the presumptive and complete Donath-Landsteiner tests.[23] Acid hemolysins of paroxysmal nocturnal hemoglobinuria are demonstrable with the screening and acid-serum tests.[23] Miscellaneous hemolysins may include infectious, chemical, and physical agents.

Upon occasion, hemolytic problems will warrant more specialized study:

Plasma iron turnover rate, using radioactive iron, provides a reasonably good means of quantitatively measuring erythropoiesis.[6, 7, 8]

Iso- and autoerythrocytic survival may be determined by the Ashby differential hemagglutination[1, 2, 3] or radioactive chromium-tagged red blood cell technics.[4]

The *epinephrine test* determines the degree of erythrocytic sequestration in the spleen—a confirmatory test for dyssplenism.[24]

Abnormal types of hemoglobin[30] may be differentiated by paper electrophoresis[25, 26] and solubility determinations.[27, 28]

No test is 100% efficient. Rather, the diagnosis is dependent upon correlating the clinical picture and possibly a number of the auxiliary tests.

TREATMENT

In 1914, Türk wrote: "The hemolytic syndromes are the children and the spleen is their mother, but the father is still unknown and possibly there are several fathers."[29] This splenic-hemolytic disease intimacy does not always exist, however. The question of whether splenectomy may be beneficial generally arises early. Splenectomy is effective in 98% of the cases of hereditary spherocytosis and in about 50% of the cases of idiopathic and symptomatic types of acquired hemolytic anemia. In hereditary spherocytosis the marked destruction of spherocytes ceases; however, splenectomy does not influence the persisting spherocytosis. In acquired hemolytic anemia of the secondary or symptomatic (secondary dyssplenic) type, splenectomy may correct the complicating hemolysis without having significant effect on the generalized systemic disease. Splenectomy is of no value in paroxysmal nocturnal hemoglobinuria, sickle-cell anemia, or thalassemia. With thalassemia and sicklemia, a secondary dyssplenism may rarely be demonstrated and splenectomy is beneficial. Also, the mechanical pressure of the markedly enlarged spleen may be relieved by splenectomy. Normal erythrocytes transfused into persons with sickle-cell anemia, thalassemia, and paroxysmal nocturnal hemoglobinuria

have a normal survival. Therapy is primarily supportive.

Protection of the patient from cold lessens the number of episodes of cold hemoglobinuria of both the agglutinin and lytic (luetic) types. In the latter, chemotherapy for the syphilis is required. Removal of offending microbial, chemical, and physical hemolytic agents is necessary when detected.

Corticotropin and cortisone are effective in inhibiting hemolysis in approximately 50% of the cases of the acquired hemolytic types. If an immune mechanism is demonstrated, these hormones are more likely to be of benefit.

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(Continued on page 198)

Unexplained Gastric Hemorrhage

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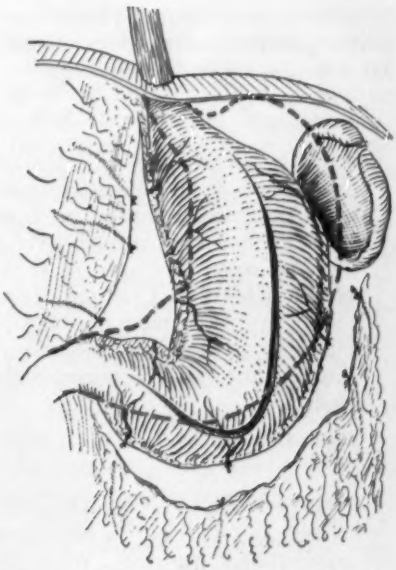
*Subtotal gastric resection should be done when the site of severe bleeding presumably caused by peptic ulcer cannot be determined.**

MASSIVE gastric hemorrhage necessitates surgical intervention when the patient has syncope and shock and needs transfusions at the rate of 1,500 cc. of blood per day or when circulating red cell volume is 60% or less of normal and red blood cell count falls to 2,500,000 or lower.

Blood values should be restored to normal and shock relieved with rapid whole blood transfusions before operation. However, if stability cannot be achieved or if bleeding starts again, immediate exploration is necessary. Early surgery is especially important for patients over 45 years of age, because the mortality rate is increased.

The bleeding site is usually found when an incision is made in the anterior gastric wall to within 7 cm. of the esophagus. After evacuating the clots from the distended stomach, all the accessible mucosa is examined.

If the bleeding point is still undetermined, the stomach is completely mobilized, allowing the fundus to be displaced downward (see illustration). The entire mucosal area can then be visualized and palpated.



Downward displacement of the stomach. Normal placement is indicated by dotted lines.

A 75% to 80% gastrectomy is performed if the examination still reveals no cause for the hemorrhage. An infradiaphragmatic vagotomy should also be done if superficial erosions and ulcers are found high in the stomach, near the esophagus. Bleeding is due to extension of the erosions into the vascular mucosal and submucosal plexuses.

*Severe hemorrhage in presumed peptic ulcer. Arch. Surg. 69:366-377, 1954.

When massive bleeding recurs after subtotal gastrectomy, reoperation is done. All the remaining stomach is removed with the exception of a small 1.5-cm. cuff. The mucosa of the cuff can be easily examined.

Of 11 patients operated upon for severe gastric bleeding, 5 exhibited no source of bleeding at exploration; 3 of the 5 died. Postmortem examinations revealed that superficial ulcerations were located near the cardias.

Of the 2 living patients, 1 has remained well since surgery; the resected specimen showed multiple superficial erosions and atrophic gastritis. The other patient has had 3 recurrences of bleeding.

¶ OPEN TREATMENT OF BURNS is facilitated when aluminum dusting powder is used after cleansing. Metal of an approximate size of 50 microns is dusted on from a salt shaker or patted on with gauze every six hours for forty-eight hours. Within twenty-four hours a pliable covering forms. A. W. Farmer, M.D., and associates of the Hospital for Sick Children, Toronto, find that the eschar becomes tough, dry, and moderately flexible by the second day so that splinting or suspension is not necessary. When sprinkled on the bed sheets directly, the powder prevents the coverings from adhering to the lesions.

Plast. & Reconstruct. Surg. 14:171-177, 1954.

¶ OPERATIVE WOUNDS SPRAYED WITH AEROPLAST heal as well and with as few complications as injured tissue covered with conventional dressings. When the plastic compound is applied immediately after suture, Stanley P. Rigler, M.D., and W. E. Adams, M.D., of the University of Chicago find that the resulting transparent film facilitates observation of the area, especially incisions of the thorax. The substance, a modified polyvinyl chloride acetate copolymer in an ethyl acetate solvent, is somewhat less expensive than commonly used material.

Surgery 36:792-797, 1954.

¶ PANCREATIC SECRETION is not directly stimulated by either histamine or Histalog, a histamine analogue. However, in patients capable of secreting hydrochloric acid, David A. Dreiling, M.D., of Mount Sinai Hospital, New York City, finds that a profuse flow from the pancreas may be induced by the secretin formed as a result of action of the gastric juice on the duodenal mucosa. This secondary efflux is incapable of neutralizing the acid.

Gastroenterology 27:334-345, 1954.

Management of Soft-Tissue Sarcomas

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*Biopsy of a painless soft-tissue mass of indefinite outline and unusual consistency should be made to establish diagnosis of sarcoma.**

ALTHOUGH uncommon, sarcomas of soft tissue are not difficult to diagnose, and treatment is often very successful. A nontender, progressively enlarging mass in the skin, subcutaneous tissue, or deeper structures is usually the only obvious finding. If the duration of the mass is short and the rate of growth rapid, sarcoma is strongly suggested.

If the tumor is so situated as to interfere with the anatomy or function of adjacent structures or organs, symptoms referable to the displaced area become prominent. Thus, a patient may have symptoms of varicose veins in an extremity in which a sarcoma has obstructed venous return; or, by pressure or invasion of a nerve trunk, a sarcoma may give rise to neuralgia.

Injury to the area before or concomitant with the development of sarcoma is frequently mentioned by the patient. However, this etiology is probably unlikely. The explanation may lie in the fact that sarcomas are most frequently located in extremities and other areas easily subject to acute trauma.

Superficial soft-tissue masses are readily palpated. Deeper tumors may require examination in several positions. Benign tumors tend to be well encapsulated, homogeneous, and freely movable over deeper structures. Sarcomas often have indefinite outline, vary in consistency, and may be fixed to underlying structures or skin.

Roentgenograms of benign tumors frequently show discrete, well-demarcated areas of water density. Sarcomas should be suspected when soft tissue swelling is evident with no discernible discrete mass. Histologic study of representative material is the only laboratory procedure of diagnostic importance.

Diagnosis is confirmed by biopsy before treatment is undertaken. Anesthesia is usually required. However, if the sarcoma has ulcerated through overlying skin, biopsy can be made from the area of fungation without anesthesia. Depending upon the size of the tumor, either incisional or excisional biopsy is performed.

Treatment must be accurate, aggressive, and adequate. Sarcomas arising from bone and cartilage or from fibrous, muscle, peripheral nerve, adipose, vascular, or synovial tissue usually require surgical excision. Since many of the sarcomas spread by direct extension along

*The diagnosis and treatment of soft part sarcomas. Virginia M. Month. 81:463-470, 1954.

contiguous fascial planes and muscle fasciculi, adequate resection entails wide excision of surrounding tissue. Therefore, depending upon the anatomic location of the tumor, radical block resection of soft tissue is adequate in some cases, while amputation is required in other instances.

With radiation therapy, too, preliminary biopsy is necessary to establish both the existence and the histologic type of sarcoma. In general, sarcomas arising from undifferentiated mesenchymal tissue or from lymphatic or reticuloendothelial tissue are best treated with radiation. Some liposarcomas, angiosarcomas, and synovial sarcomas may be treated with radiation, but cure is rarely accomplished.

In order to provide radiation saturation of all tissues invaded by neoplastic cells, attention must be directed to daily and total dosage and time factors, as well as to number and size of radiation portals.

Occasionally, a large tumor may be treated with good results by combining irradiation and surgery.

Soft-tissue tumors usually spread through the blood stream but also may disperse by way of the lymphatics to regional lymph nodes or by direct extension along muscle bundles or fascial planes. Cure is generally impossible when widespread dissemination occurs through the blood stream. Treatment of local spread along muscle and fascial planes should be accomplished simultaneously with control of the primary tumor. Roentgen therapy is usually effective for sarcomatous node metastases from lymphocytomas or neuroblastomas; occasionally for metastases from reticulum-cell sarcomas; and infrequently for metastases from other soft-tissue sarcomas. Solitary pulmonary metastases are successfully resected in some cases.

Surgery for Solitary Pulmonary Lesions

CHARLES V. MECKSTROTH, M.D., NEIL C. ANDREWS, M.D., AND KARL P. KLASSEN, M.D., OHIO STATE UNIVERSITY, COLUMBUS, believe that thoracotomy and thorough exploration of the hemithorax should be done for a patient with a solitary pulmonary lesion. A complete cardiopulmonary evaluation should be done.

Lateral and oblique roentgenograms should be made, since the existence of a solitary lesion does not eliminate the possibility of multiple lesions, especially with metastatic carcinoma. Calcification does not always indicate tuberculoma or granuloma, since the process occurs also with sarcomas and hamartomas.

At operation, frozen sections are made and benign lesions are excised locally. With malignant growth, lobectomy is done if regional lymph nodes do not reveal malignant metastasis; pneumonectomy is performed if the nodes are involved.

Surgery for solitary lesions of the lung. Arch. Surg. 69:220-232, 1954.

Hyperparathyroidism: Surgical Aspects

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*Renal function may continue to deteriorate unless hyperparathyroidism is recognized and controlled early.**

Most individuals with hyperparathyroidism have normal skeletons. However, because excessive blood calcium must be eliminated in the urine, urinary stone formation is frequent. When diffuse kidney tubular calcinosis occurs, chronic progressive renal failure is often fatal.

Hyperparathyroidism may be caused by an adenoma, diffuse hyperplasia, or carcinoma. Surgical excision of the hyperfunctioning tissue is the only treatment. Because of the small size of the glands the procedure is usually difficult and requires tedious dissection. More than one-half of adenomas weigh less than 1 gm.

In over 90% of cases, adenomas occur singly, but a hyperplastic process may involve all four glands. When more than two glands are affected, the patient usually has a polyendocrine syndrome with associated tumors of the pituitary and hyperfunctioning islet cell tumors of the pancreas.

The diagnosis of carcinoma is difficult if local invasion is not extensive. Skilled pathologic judgment is required.

In all operations for hyperparathyroidism, a methodical demonstration of all four glands is necessary. Rarely, due to fusion, only one gland, doubled in size, is found on one side, but more often the superior glands are observed on the posterior or medial surface of the upper two-thirds of the thyroid gland and the inferior parathyroids in the vicinity of the inferior pole. Supernumerary glands occasionally are seen in the immediate vicinity of the normal glands.

Although the parathyroid glands may be found in the visceral fascia from the pharynx to the arch of the aorta, an adequate cervical dissection will isolate all the glands in 98% of operations. Traction on the vascular pedicle will often pull up a mediastinal gland, obviating mediastinotomy.

Identification of the glands is not difficult since the yellow-brown color readily differentiates parathyroid tissue from other structures of the neck. However, the field must be kept bloodless below the strap muscles, since the color of the glands is completely lost in blood-stained tissues. In hyperparathyroid patients, glands uninvolved by the adenoma tend to be atrophic and less colorful, making identification more difficult.

The lobe of the first side of the

*Surgical aspects of hyperparathyroidism. Am. Surgeon 20:1044-1050, 1954.

thyroid is widely mobilized through a thyroidectomy incision, and the areolar tissue carefully separated from the capsule and superior and inferior thyroid arteries. After the recurrent laryngeal nerve is isolated, a thorough search is made for the parathyroid glands. In all cases, bilateral dissection is performed after recurrent laryngeal nerve function has been tested on the first side. If no lesion is found, absolute identification of the parathyroids must be made by biopsy to prove which of the glands is missing.

A concealed superior gland is usually medial to the thyroid or between the trachea and esophagus. Missing inferior glands are caudal to the inferior thyroid pole among the inferior thyroid veins, close to the trachea, or in the mediastinum. However, mediastinal dissections are postponed for several months. Diagnosis must be reestablished, since cervical adenoma may have been destroyed unknowingly during neck dissection.

Adenomas are removed totally, and in cases of primary hyperplasia, all but about 100 mg. of vascularized parathyroid tissue is resected. Cancer is treated with radical excision and node dissection.

Transient postoperative tetany is common but requires little treatment unless all parathyroid tissue has been destroyed. Normal serum calcium levels are then maintained by administration of oral calcium lactate or gluconate and dihydrotachysterol.

Traumatic Arterial Spasm and Thrombosis

W. STERLING EDWARDS, M.D., AND CHAMP LYONS, M.D., MEDICAL COLLEGE OF ALABAMA, BIRMINGHAM, believe that surgical exploration is necessary when the peripheral pulse is noticeably diminished or absent after injuries above the knee or elbow.

If brachial block or spinal anesthesia does not effect a return of pulsation in a few minutes, even if skin temperature rises, the injured artery should be explored immediately. However, no definite time limit should be set after which exploration is considered useless. If retrograde flow can be obtained after aspiration of the clot, distal circulation can be restored.

The perivascular sheath should be opened widely and any hematoma evacuated. If spasm persists after local application of warm saline, procaine, or papaverine, the area should be resected and grafted. Excision and graft are also performed when contusion or thrombosis occurs. Saphenous vein grafts are used when the area can be covered and supported by muscle to prevent dilatation; arterial homografts are employed for unsupported areas. A short graft is used rather than division of important collateral branches.

Traumatic arterial spasm and thrombosis. Ann. Surg. 140:318-323, 1954.

Management of Pancreatic Tumors

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*Benign and malignant pancreatic tumors produce profound physiologic and metabolic disturbances.**

TUMORS of the pancreas are often overlooked because the pancreas is not considered in the differential diagnosis. However, typical symptom complexes exist.

Pancreatic heterotopia most commonly occurs around the pylorus or duodenum. Ectopic pancreatic tissue may be found in Meckel's diverticulum. The masses may be loosely adherent to the serosal surface of the intestine or may appear in the subserosa, submuscularis, or submucosa.

Motor disorders of the bowel, intussusception, ulceration, or bleeding may occur, but usually little symptomatic disturbance is noted. Local resection is usually adequate.

Most common loci for pancreatic tumors

Cystadenomas of the pancreas are rare. The tumors are irregularly lobulated with variable consistency from one part to another. Infrequently, these slow-growing cysts become malignant. Partial pancreatectomy is recommended.

Cystadenocarcinomas are slow growing, multilocular, of variable consistency, and produce symptoms by pressure on surrounding organs. Even large cysts are usually resectable and internal drainage should be reserved for papillary cystadenocarcinomas that cannot be surgically removed.

Islet cell tumors should be suspected in patients with symptoms of hyperinsulinism. Hunger, agitation, perspiration, pallor, dizziness, and convulsions or loss of consciousness occur during periods of fasting, particularly after exercise. Rapidly absorbable sugars or intravenous glucose brings prompt relief. Blood sugar is below 50 mg. per cent during episodes.

After other causes of hypoglycemia are eliminated, patients with hyperinsulinism should have careful exploration of the pancreas. Enucleation or, if invasion is local, partial pancreatectomy should be done and a frozen section made. If the tumor appears malignant, a more radical procedure can be performed. Total

*Current management of benign and malignant pancreatic tumors. Am. Surgeon 20:1070-1076, 1954.

pancreatectomy is justified only if the adenoma cannot be found and conservative measures fail to control hypoglycemia.

Carcinomas of the ampulla of Vater, head of the pancreas, distal common bile duct, and duodenum are similar in manifestations and surgical requirements. The outstanding symptoms are pain, jaundice, weight loss, fatigue, diarrhea, and constipation. Carcinoma of the head of the pancreas has an insidious onset. Steatorrhea and creatorrhea may occur because the duct of Wirsung is obstructed.

With carcinoma of the ampulla, pain occurs less frequently and jaundice usually precedes constitutional symptoms. Indigestion, physical deterioration, and anemia are suggestive of duodenal carcinoma.

Icterus, hepatomegaly, and weight loss are the most common physical findings. A distended gallbladder may be palpable. Roentgenograms show enlargement and irregularity of the duodenal loop. The diagnosis is helped when serum bilirubin and alkaline phosphatase are elevated in the absence of significant hepatocellular damage.

Radical pancreatoduodenectomy is performed if the tumor is believed to be resectable. The duct of Wirsung is anastomosed to a loop of jejunum. A two-stage procedure is preferred if the liver is severely damaged by prolonged obstruction.

Prognosis with carcinoma of the ampulla is considerably better than with carcinoma of the pancreatic head. Carcinoma of the head of the pancreas metastasizes early, and careful search for areas of extension should be made before resection is undertaken. Radical operation should not be attempted unless the growth is confined to the head of the pancreas.

Thrombocytopenia and Postoperative Bleeding

CHARLES W. MC LAUGHLIN, JR., M.D., AND JOHN D. COE, M.D., OMAHA, observe that severe postoperative hemorrhage may be a sign of thrombocytopenia, which should be treated immediately and radically, if necessary.

Hemorrhage usually occurs within a week after operation; insecure ligation of vessels should be considered. The most valuable diagnostic aid is a noticeable decrease in platelet count with evidence of megakaryocytic activity in the bone marrow. Occasionally, aplastic anemia, leukemia, or splenic disorders or treatment with toxic chemicals and drugs may cause thrombocytopenia.

Treatment depends on the individual case. Supportive therapy with fresh blood transfusions is valuable, as is replacement by injection of resuspended platelets. When bleeding is severe and cannot be controlled by conservative management, splenectomy is done.

Massive postoperative hemorrhage due to unrecognized thrombocytopenia. Arch. Surg. 69:378-384, 1954.

Prevention and Therapy of Scars

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*So that slight disfigurements do not nullify in the patient's mind the effects of good surgery, the surgeon should apply the fundamental rules of wound healing to all repairs of facial trauma.**

MANY local factors affect formation of scars during wound healing. Since the blood supply in the face is more abundant than in the buttocks, back, and legs, facial wounds are seldom infected, especially with aerobes. Sutures can be removed early because of the good blood supply and little tissue turgor.

However, if infection does occur, scarring results, in direct proportion to duration and degree of infection. Retained foreign bodies also cause unsightly scars as early inflammatory reactions give way to fibrosis. Massive reaction may occur around organic material, dead tissue, incarcerated hair, or extravasated blood.

Rest is an important factor in wound healing. Continued motion during healing, particularly of wounds on joint surfaces, produces massive scars. Immobilization by splint, cast, or pressure dressing will reduce redness and swelling. The subsequent scar is small and soft.

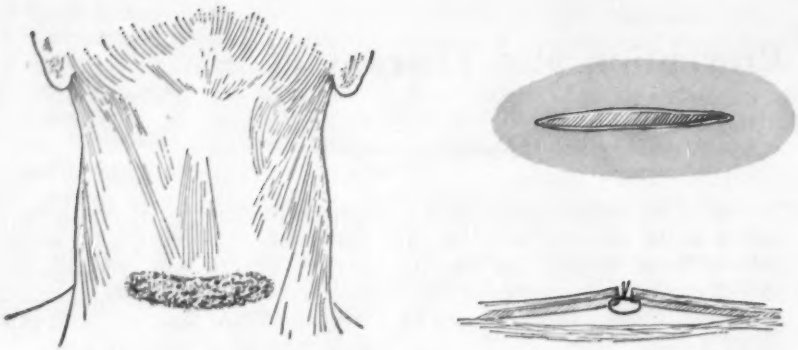
Incisions or wounds under tension heal with excessive fibrosis. Therefore, incisions should be made and wounds closed in the lines of skin tension, in general, the normal creases of the skin. Wounds perpendicular to these lines, especially over the flexor joint surfaces, often heal with large bandlike scars.

Racial, endocrine, and dietary factors also affect wound healing. Negroes have tendencies toward keloids or hypertrophy of scar formation. Heavy scars are often seen in young persons in whom growth is rapid; during periods of endocrine stress, as at puberty; during pregnancy; in patients with thyroid dysfunction; and after severe burns.

Early closure of facial wounds is important to prevent massive scarring. The surrounding skin is cleansed with soap and water, with the wound protected by a sterile dressing. The wound is then flushed with sterile saline and redraped. The traumatized area is explored, and dead spaces are closed, clots evacuated, and foreign bodies and dead tissue removed.

Closure is from the inside out, closing fascial layers principally. Wound edges are brought together perpendicularly, using slight subcutaneous undermining, if necessary. The finest nonabsorbable suture that will hold is used, preferably white silk No. 0000, No. 00000, or No. 000000. Dermal or subcuticular sutures, interrupted and placed up-

*Scars. Missouri Med. 51:729-734, 1954.



Revision of neck keloid; area of undermining is shown in color.

side down with the knot buried, give good cosmetic results. Sutures are removed within two days.

When the wound is closed in layers, including the dermis, skin sutures are often unnecessary. Tension sutures should never be used for wounds of the face and neck.

If blood or serum accumulates, a pressure dressing is used. Drains, if needed, can be brought into the mouth or nasal cavity from the antrum to avoid scarring the skin.

Scars should not be revised until at least six months after the initial trauma. After excision of the scar, undermining laterally into the subcutaneous tissue usually permits closure in the direction of skin tension lines without difficulty. To prevent depression in deeply scarred areas, only the surface part of the scar is removed.

A full-thickness skin graft or flap procedure yields good cosmetic results. Primary repairs on tongue-shaped, avulsed flaps, however, must be handled with care to insure that the approximated edges are at right angles to the skin surface in order to prevent a raised, dumpling-like scar. Thinned-out edges are excised, and considerable undermining of the outside tissue is necessary.

Scars across flexor joint surfaces may be repaired with Z-plasty.

¶ RELIEF OF MIGRAINE is provided by intramuscular or intravenous injection of Dramamine, no matter how severe or prolonged the attack. In 50 patients with migraine, nausea and pain subsided completely within four minutes after intravenous and fifteen minutes after intramuscular administration of 50 to 100 mg. of the drug, reports Maurice Vaisberg, M.D., of Miami Beach. When given by vein, each cubic centimeter of Dramamine must be diluted with at least 9 cc. of normal saline solution.

Ann. Allergy 12:180-181, 1954.

The Heart in Acute Nephritis

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*One of the most important aspects of therapy for acute glomerulonephritis is the prevention of cardiac failure.**

AWARENESS of the frequency and possible fatal results of cardiac insufficiency with acute nephritis is the first step in proper management of the patient. Prevention of heart failure is more efficacious than treatment. Acute pulmonary edema that ensues after ventricular failure is often irreversible.

Recognition of heart involvement depends upon careful physical, roentgenographic, and electrocardiographic examinations. A gallop rhythm is the most important sign of imminent heart failure.

Other symptoms include accelerated pulse rate, beginning cardiac dilatation, development of a systolic mitral murmur, rales of pulmonary edema at the bases of the lungs, and dyspnea or orthopnea, sometimes only slight. Edema of acute nephritis may obscure distention of the cervical veins. Hypertension always occurs but may disappear before heart failure becomes severe. If elevated blood pressure persists, prognosis is grave.

Demonstration of cardiac enlargement by roentgenogram is positive evidence of heart disease. Transient changes in heart size are not apparent unless serial 6-ft. teleroentgenograms are made. Cardiomegaly may be overlooked entirely if the first films are made late in the illness.

Electrocardiographic abnormalities appear early in about one-half of patients and typically revert to normal in two to three weeks. The characteristic change is flattening or inversion of the T wave in lead I, with reversal to upright as improvement is noted. Other findings include a negative T wave in lead II, prolonged Q T interval, sinus tachycardia of 100 or more, and sinus bradycardia of 60 or less. Electrocardiographic abnormalities occur most frequently with hypertension.

Proper regulation of fluids; reduction of hypertension, if possible; and cessation of all physical activity are imperative to prevention of cardiac failure in patients with acute nephritis. The administration of large quantities of intravenous fluids may precipitate failure when the heart is already under strain from acute nephritis. Anuria or oliguria will accentuate the danger. Prompt digitalization should be done for dyspnea. When decompensation is obvious and advanced, recovery is doubtful.

In a group of 88 adult and pedi-

*The heart in acute glomerulonephritis. Ann. Int. Med. 41:510-532, 1954.

atric patients with acute glomerulonephritis, cardiac abnormalities were found in 41; heart failure occurred in 22 of these patients. The diagnosis was more common in individuals who were over 21 years of age.

Severe hypertension and cardiac decompensation were closely associated. The failure appeared to be primarily left-sided, with right-sided failure later. All the patients had dyspnea, in most instances during resting as well as on exertion.

¶ PNEUMOCOCCAL PNEUMONIA is usually ameliorated within forty-eight hours by Tetracyn given every six hours by mouth in doses of 0.5 gm. Since toxicity of the drug is negligible, Anthony J. Palazzolo, M.D., and associates of Philadelphia General Hospital and the University of Pennsylvania, Philadelphia, advocate use of the antibiotic when the patient is sensitive to penicillin, the pathogen is unknown, or a gram-negative organism is believed to be the causative agent.

Antibiotics & Chemother. 10:1075-1081, 1954.

¶ TREATMENT OF HYPOTHYROIDISM is as effective and economical with sodium *l*-thyroxin as with desiccated thyroid extract. As the biologically potent synthetic compound is readily absorbed from the gastrointestinal tract, Paul Starr, M.D., and Ruth Liebhold-Schueck of Los Angeles County Hospital and the University of Southern California, Los Angeles, find that daily oral doses of less than 1 mg. of the drug eliminate myxedema and maintain euthyroidism. Usually in either the primary or secondary form of the disease, 0.05 mg. is given daily by mouth initially and the amount is progressively increased to an optimum of 0.2 to 1 mg. a day.

J.A.M.A. 155:732-736, 1954.

¶ PERNICIOUS ANEMIA usually involves transient injury to the liver as evidenced by hypoprothrombinemia and changes in the protein balance of the blood. As the damage occurs most frequently with cryptogenic and tapeworm anemias but seldom with secondary or posthemorrhagic anemic states, Ruben Gordin, M.D., of the University of Helsingfors, Finland, attributes the dysfunction to deficiency of a specific hepatic factor essential to the synthesis of prothrombin. Vitamin B_{12} is not as effective in restoring production of the clotting substance to normal as unpurified liver extracts, which should be used for treatment of macrocytic anemias except when allergic reactions are provoked.

Acta med. scandinav. 149:1-18, 1954.

The Postdysenteric Syndrome

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*Recurrent diarrhea and abdominal pain are often sequelae of severe intestinal infection.**

Local organic and functional alterations produced in the colon by acute dysenteric disease may cause persistent symptoms of intestinal dysfunction after subsidence of the initial infection. Organic changes include chronic ulcerative colitis and scarring of the bowel; functional alterations consist of spasm, hyperactive gastrocolic reflexes, and diminished gastric acidity.

Abdominal pain is a prominent symptom, occurring in about 70% of patients. The pain almost always occurs infraumbilically and varies from acute colicky distress to a dull ache. Discomfort is relieved by the passage of flatus or stool. The pain occurs intermittently and usually lasts several days.

Repeated, careful stool examination must be made to determine persistence of infection. In some patients, the original etiologic agent may continue; in others an unsuspected pathogen may be found.

An outstanding feature of the postdysenteric syndrome is an exaggerated reaction of the bowel to various nervous and psychic stimuli due to local injury to the autonomic nervous system resulting from intestinal infection which lowers the threshold to even normal stimuli. The degree of disability resulting from hypermotility and excess secretion or increased pain perception will vary according to individual psychologic maturity.

An investigation was made of 150 World War II male veterans with previous acute dysenteric infection to find the factors perpetuating the symptoms. Slightly more than half had had amebic dysentery and slightly less than half bacillary dysentery. A few had had worm infestations.

One-third of the patients had achlorhydria, suggesting either a greater susceptibility to infection because of lack of the sterilizing effect of gastric acidity or inhibition of gastric secretion by chronic enteric infection.

About 40% of patients had irregularities by sigmoidoscopic examinations, consisting primarily of changes in color, tonicity, and secretion. Barium enema studies revealed spasm in 20% of cases, left-sided colonic spasm usually being associated with previous bacillary infection and right-sided spasm with amebiasis.

*The postdysenteric syndrome. Gastroenterology 27:281-291, 1954.

Cortisone and Adrenal Insufficiency

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*Both primary and secondary adrenal cortical insufficiency may be relieved by cortisone.**

ADRENAL insufficiency causes [1] loss of sodium and chloride in the urine, [2] a decrease in renal excretion of urea and potassium, [3] faulty handling of water with tendency for water intoxication, [4] poor tolerance to stress, [5] decreased gluconeogenesis with resulting hypoglycemia from fasting more than twelve to sixteen hours, and [6] a great decrease in muscle strength.

The use of cortisone and hydrocortisone in dosages adjusted to conditions of stress corrects these serious symptoms and practically eliminates crises.

Most patients require 12.5 mg. of cortisone orally a day, while some need as high as 25 mg. divided into at least 2 doses. Evening doses often cause insomnia and should be avoided.

If a patient has a respiratory infection, is undergoing any unusual stress, or is injured, the dose of cortisone should be doubled or tripled. If the patient vomits, 50 to 100 mg. should be given intramuscularly.

At least half of patients need some form of desoxycorticosterone acetate (DCA). Oral linguets, 2 mg. once or twice daily, usually suffice. Daily intramuscular injections afford exact and yet flexible therapy but are inconvenient. Pellet implantation is usually unnecessary.

Cortisone or hydrocortisone may be useful for adrenal cortical insufficiency associated with hypopituitarism. However, since multiple glandular deficiencies are involved in this condition, replacement therapy often is not completely corrective.

With addisonian crisis, cortisone or hydrocortisone is administered orally if the patient is not vomiting. The initial dose is 50 to 100 mg. and a total dose for the first day is 100 to 300 mg. When vomiting occurs or the patient is unconscious, the intramuscular dose is 100 to 200 mg. initially with a total dose of 150 to 300 mg. on the first day. Usually the patient is so improved on the second day that the total dose by either route can be reduced to 100 mg.

DCA in oil, 10 mg., should be given intramuscularly unless previous toxicity is noted. On subsequent days the dose can be lowered to maintenance amounts.

The need for salt and fluids is variable. Patients not previously

*Problems arising in the treatment of adrenal insufficiency with cortisone and hydrocortisone. Minnesota Med. 37:623-625, 652, 1954.

treated require 2 to 3 liters of saline with glucose. If a treated patient has a crisis because of infection or trauma, the amount of sodium chloride is restricted to 9 gm., with the amount of water limited to 2,000 to 3,000 cc. a day.

Some patients are sensitive to cortisone or hydrocortisone when initially administered and may become mentally stimulated. If this occurs, the dose is reduced and spread over the whole day in 3 or more divided doses, and then gradually increased to a maintenance dose of 12.5 mg. or more per day.

Hemoconcentration at times will occur without irregularities in serum electrolyte concentrations, especially in patients doing well on ordinary maintenance doses of cortisone until onset of an infection. In these cases, saline infusion is given. However, in most patients, more cortisone is needed during infection or after injury and not greater amounts of salt and water.

ACTH is very useful for diagnosing adrenal cortical insufficiency. The eosinophil response after intramuscular injection of 25 units is a fairly good screening method but gives false positive results in about 10% of patients without adrenal disease. Therefore, intravenous administration of 20 to 25 units in 500 cc. of saline solution over an eight-hour period is recommended. The determination of a decrease in eosinophils offers a reliable qualitative appraisal of adrenal cortical function.

Determination of the increase in excretion of 17-hydroxycorticosteroids or of 17-ketosteroids, although more time consuming and exacting, gives a better quantitative appraisal than the eosinophil counts. When an eight-hour infusion of ACTH is given on two successive days, the usual rise of 17-hydroxycorticosteroids is 10 mg. for the first twenty-four hours and 20 mg. for the next twenty-four hours with about half this increase in 17-ketosteroids at the same time.

For patients with adrenal cortical insufficiency due to pituitary failure or to prolonged administration of cortisone or hydrocortisone, little or no response may be seen to the first or even second intravenous injection of ACTH. Greatest stimulation usually is obtained by the fourth day.

Occasionally patients with adrenal insufficiency react to intravenous ACTH with fever and collapse. Use of a saline vehicle decreases this danger.

¶ TREATMENT OF WHIPWORM INFECTION with hexylresorcinol retention enemas is expedited by substituting 0.4-gm. tablets of the drug for the powder. Rodney C. Jung, M.D., of Tulane University of Louisiana, New Orleans, prepares a suspension by adding 2 tablets to 400 cc. of distilled water. In 16 patients the egg count was reduced, diarrhea was relieved, and worms were eradicated from portions of the bowel that could be visualized by proctoscope.

Am. J. Trop. Med. 3:918-921, 1954.

Management of Reversible Uremia

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*Treatment of reversible contributory causes of renal decompensation may restore an acutely ill patient to useful life.**

EVEN slight improvement in renal function of a uremic patient may make the difference between progressive deterioration and compensation. Therefore, a search should be made for reversible factors.

When *congestive heart failure* contributes to renal decompensation, digitalization will usually improve function. Digitalis may be given as a therapeutic test to patients with edema without breathing difficulty or elevation of venous pressure.

Antibiotic therapy may reverse kidney or systemic *infections* that contribute to renal decompensation. Since pyelonephritis is sometimes asymptomatic, cultures should be made of urine of every patient who has renal disease. When a patient with a neurogenic bladder has persistent infection, parasympathomimetic drugs should be administered to help the bladder empty completely.

Renal insufficiency may be caused by lower urinary tract *obstruction*. Plain films of the abdomen should be made of every patient with uremia and oliguria to detect possible ureteral calculi.

Dehydration initiates a cycle of renal insufficiency, vomiting, and additional dehydration. When a patient is not edematous, salt is given at meals to stimulate thirst and replace sodium lost in the urine. Sodium chloride pills, if prescribed, should not be enteric coated.

A carbohydrate drink or hot milk or coffee early in the morning prevents vomiting caused by overnight polyuria. Breakfast should not be delayed until blood samples are obtained, and overnight dehydration for a concentration test should be avoided. Drugs and procedures that may initiate nausea are used cautiously.

Hyponatremia is especially likely to occur with an organic lesion but may also produce uremia when the kidney is not diseased. Sodium depletion is sometimes caused by mercurial diuretic therapy of patients with congestive heart failure using low-salt diets. Enough sodium must be administered to restore osmotic concentration in all body fluids.

Alkalosis may occur in peptic ulcer patients taking sodium bicarbonate. Renal function slowly returns to normal when alkalosis is corrected. Concomitant *potassium depletion* may be partially responsible for kidney disturbances. The two conditions act synergistically and perpetuate each other.

*The treatment of reversible uremia. Yale J. Biol. & Med. 27:53-69, 1954.

Potassium should be added to saline solution administered for dehydration and hyponatremia when the element is depleted.

Hypercalcemia may damage kidneys by stone formation, by deposition of calcium, or by impairment of function without calcium deposition. The disorder may occur when a high-calcium diet is given for peptic ulcer or with vitamin D intoxication or hyperparathyroidism. Parathyroid resection may improve renal function, but the damage is sometimes irreversible.

Anemia decreases renal blood flow and promotes edema. Since the disorder with renal disease is not usually improved by ferrous sulfate, transfusions are given periodically until symptoms subside. Washed red cells and warmed tubing are used to avoid reactions.

Self-limited, acute disorders are other reversible causes of renal insufficiency. The damage, if not fatal, resolves and a remission occurs. The most common disorders are acute tubular necrosis and acute glomerulonephritis. Tubular necrosis may be caused by poisoning, shock, or transfusion reactions. Oliguria generally occurs for ten to fourteen days. Electrolyte, blood, and fluid losses should be replaced. Fluids are restricted to insensible, urinary, and gastrointestinal losses. About 100 gm. per day of glucose is given to lessen protein breakdown.

When high serum potassium levels are associated with high peaked T waves in the electrocardiogram, dialysis by an artificial kidney or peritoneal dialysis may be necessary. Potassium may be temporarily depressed by infusions of glucose while deleterious cardiac effects are temporarily avoided by injections of calcium salts or by infusions of hypertonic saline.

Diuresis occurs after the oliguric phase. Therapy may be required for dehydration, loss of electrolytes, rising nonprotein nitrogen, hypertension, pulmonary edema, anemia, or infection from an indwelling catheter. If diuresis is survived, renal function gradually returns.

Similar measures are used for oliguria with acute glomerulonephritis. Special attention must be given to mouth and throat care to prevent infections. The patients are also susceptible to congestive heart failure. For vomiting, parenteral feeding is necessary, and even cracked ice must be withheld.

Bed rest is a valuable adjunct in treatment of reversible uremia. The diet should be standard and as high in protein as tolerated.

¶ TOXIC HEPATITIS may occur during or after therapy with phenylbutazone. Ephraim P. Engleman, M.D., of the University of California, San Francisco, and associates report that none of 6 patients had previous exposure to hepatotoxins or viral infections, parenteral medication, or blood transfusions. All of the patients were women; 2 died.

J.A.M.A. 156:98-101, 1954.

Radioactive Iodine for Thyrotoxicosis

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*Euthyroid or hypothyroid states may be achieved in patients with hyperthyroidism by use of radioactive iodine.**

THE objective of radioactive iodine therapy is to induce a euthyroid state with a single dose. Factors influencing effect of dosage include [1] susceptibility of the thyroid tissue to irradiation, [2] degree of correlation between tracer dose and treatment dose retention in the gland, [3] the effective half life of radioactivity in the gland, [4] the rate of thyroidal turnover of radioactive material, and [5] the anatomic state of the gland.

Euthyroidism or hypothyroidism can be produced in any person with hyperthyroidism by adjusting the dose. Therapeutic levels range from 2 to 22 millicuries.

Size of the dose is dependent upon the size of the gland: 4 millicuries for a normal size gland with an increase of 1 millicurie for each additional estimated 10 gm. of gland. Most patients require 10 or less millicuries.

For recurrent hyperthyroidism, 4 millicuries is administered when thyroid tissue is palpable; 2 to 10 millicuries, depending upon the urgency of the condition, is given when no tissue is palpable.

The size of the gland in toxic diffuse hyperplasia does not affect pretreatment or posttreatment radioiodine uptake and has no bearing on posttreatment hypothyroidism. However, as expected, increased gland size requires greater dosages.

The beneficial effects of irradiation in reducing toxicity are not apparent for six to eight weeks. During this period, many patients are given sedation and antithyroid drugs. Except in large nodular goiters associated with fibrosis and calcification, uniform reduction in gland size is noted.

For all tracer studies, antithyroid medication is discontinued five or more days previously. If this is not done, the iodine uptake is blocked; in the case of stable iodine, the gland may be blocked for three months or more except in extremely toxic conditions.

Although not required, hospitalization is preferred until most of the radioactive material has been excreted in the urine.

Of 86 thyrotoxic patients treated with radioactive iodine, 64% returned to the euthyroid state after only one dose. In most cases, euthy-

*An evaluation of radioactive iodine (131) therapeusis in thyrotoxicosis. J. Louisiana M. Soc. 106:368-375, 1954.

roidism was achieved within two months. Of the patients, 80% were female and 63% were over 40 years of age.

Postirradiation exophthalmos appeared in 2 patients and was readily controlled with desiccated thyroid; 11 patients given single doses of radioactive iodine acquired permanent hypothyroidism. One death in thyroid storm occurred twenty-four hours after treatment.

Postirradiation malignant lesions were not observed and no significant effect upon the reproductive organs was found. Posttreatment pregnancy and normal delivery are possible.

Hydrocortisone for Bronchial Asthma

HYLAN A. BICKERMAN, M.D., AND ALVAN L. BARACH, M.D., COLUMBIA UNIVERSITY, NEW YORK CITY, believe that the risks of long-term hormone therapy for severe bronchospasm are reduced by use of hydrocortisone instead of ACTH or cortisone, since response to therapy is earlier, dosage requirements are lower, and adverse side effects are fewer.

ACTH is administered intramuscularly, 25 mg. every six hours for four to five days. Cortisone is usually given orally in doses of 100 mg. every six hours for three days, 50 to 75 mg. every six hours for the next three days, and 25 mg. every six hours for an additional four days. Hydrocortisone is given orally four times a day in doses 50 to 60% of those of cortisone.

Best therapeutic results are observed in patients with persistent bronchospasm precipitated by upper respiratory infection or seasonal factors, such as pollens.

Complications of treatment are lessened by a low-salt diet, administration of 1 gm. of enteric-coated potassium chloride three times daily, and the use of antibiotic drugs for bronchial and sinus infections.

During the past four years, 163 persons with intractable asthma or pulmonary emphysema with bronchospasm were given 309 courses of ACTH, cortisone, or hydrocortisone. Complete or partial remissions were observed in 82.3% of the patients given ACTH, 86.2% of those given cortisone, and 96% of those given hydrocortisone. Remissions induced by intensive ten-day courses of therapy usually lasted two to three weeks and were the same for all of the hormonal agents. Patients with bronchial asthma generally had more complete remissions than those with bronchospastic pulmonary emphysema.

Comparative results of the use of ACTH, cortisone, and hydrocortisone in the treatment of intractable bronchial asthma and pulmonary emphysema. J. Allergy 25:312-324, 1954.

Therapy for Myocardial Infarction

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*Early and efficient use of anticoagulants after acute myocardial infarction may reduce the mortality by one-half and decrease the incidence of thromboembolic episodes.**

SINCE many myocardial infarcts are preceded by attacks of acute coronary insufficiency, prompt use of anticoagulants may prevent early development of myocardial damage. Mortality may be reduced by limiting the size of the original infarct and thereby preventing the development of cardiogenic shock, hypotension, or congestive failure.

Necropsy studies of patients treated with anticoagulants show a reduction in the number of mural thrombi and peripheral or pulmonary thrombotic lesions. In addition, long-term therapy may prevent recurrences in some patients who have had one or more infarcts.

Anticoagulants are therefore employed [1] to prevent extension or propagation of the original thrombus into the coronary artery, [2] to prevent formation of a secondary underlying endocardial or peripheral thrombus, thereby lessening the risk of escape of the clot to the pulmonary or peripheral circulation and reducing the frequency of frank embolic complications, and [3] to promote the dissolution, absorption, or recanalization of the original or secondary thrombus.

Careful laboratory control is essential to anticoagulant therapy. Daily dosage is regulated by prothrombin times. The intervals between measurements of prothrombin times may be safely lengthened during prolonged treatment. Usually, after two to three weeks of daily blood samples, oral dosage may be determined on alternate days. After leaving the hospital, the patient returns twice weekly for two or three weeks for estimations. If the dose is reasonably stable and prothrombin times within therapeutic range, a weekly estimation for the next two to three months is usually sufficient.

A few individuals will have thromboembolic complications even though prothrombin time is kept within the therapeutic range. Such episodes are more likely to occur if anticoagulant therapy is postponed for even a day or two.

Bleeding occurs in a small number of patients despite careful laboratory control and is treated by withholding the anticoagulant, administration of vitamin K_1, and, if necessary, blood transfusion. Anticoagulants must be used with great caution in advanced pregnancy or with open wounds, raw surfaces, or after recent operations.

*Anticoagulants in coronary disease. Brit. M. J. 4890:720-724, 1954.

Jaundice with Hyperbilirubinemia

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*Chronic or intermittent jaundice in young people is sometimes a manifestation of a syndrome characterized by large amounts of pigment in liver cells.**

SINCE surgery is unnecessary and prognosis is good for chronic idiopathic jaundice with pigmented liver cells, diagnosis should be made early. The previously undescribed entity has been observed in 12 patients.

Abdominal pain, usually in the right upper quadrant, is the most common symptom. Weakness, anorexia, nausea, and nervousness also may occur. Some patients have hepatomegaly or dark urine. Jaundice fluctuates in intensity, is aggravated by intercurrent disease, and may persist for many years.

The gallbladder cannot be visualized by cholecystographic examination. However, operation, laparotomy, or peritoneoscopic studies rule out obstructive jaundice.

Hematologic studies show that the jaundice is not hemolytic. The patients are not anemic; erythrocyte fragility and morphology, reticulocyte count, and twenty-four-hour excretion of fecal urobilinogen are not abnormal. The results of the Coombs test are negative.

Laboratory studies also show normal prothrombin, bleeding, and coagulation times and serum proteins and cholesterol. Cephalin flocculation, thymol turbidity, and alkaline phosphatase values may be altered.

Bile is sometimes noted in the urine, and urine urobilinogen may be increased intermittently. Direct and total serum bilirubin and icterus indexes are elevated. Bromsulphalein tests often show retention.

Grossly, the liver is discolored. Microscopic examination reveals a coarse, granular, amorphous brown pigment deposited in the cells of the centrolobular zones. Spread of the pigment to the periphery of the lobules is sometimes noted. The amount of pigment is usually the same in serial biopsy specimens. Except for pigmented parenchymal cells, the histologic picture is not altered.

Duration of the disease is from eight months to thirty-three years and over five years in half the cases. The onset was insidious in 5 patients, acute and simulative of hepatitis in 4, and associated with other diseases in the 3 remaining individuals.

An inborn deficiency of the liver probably causes chronic idiopathic

*Chronic idiopathic jaundice with unidentified pigment in liver cells. Medicine 33:155-197, 1954.

jaundice; multiple defects in metabolism prevent normal excretion of bilirubin, pigment, bromsulphalein, and dyes used in cholecystographic examination. The disorder is probably not manifested until additional strain is caused by, for example, intercurrent disease or puberty.

The pigment in the liver cells may be [1] derived from a serum pigment—which is evidently bilirubin since both the direct and total blood bilirubin levels are elevated—and chemically altered by the liver; [2] produced by an abnormal breakdown of hemoglobin; [3] an accumulation of a normal catabolite caused by deficient excretory mechanism of the liver; or [4] a product of oxidation and polymerization of unsaturated fatty acids.

Constitutional hyperbilirubinemia resembles chronic idiopathic jaundice with pigmented liver cells but is distinguished by the following factors:

- Urine is not dark.
- Bilirubinuria is less frequent.
- The van den Bergh reaction is usually indirect.
- Bromsulphalein excretion, cephalin flocculation, and thymol turbidity are not abnormal.
- The gallbladder can usually be visualized at cholecystographic examination.
- The liver is not discolored.

The disorder can be differentiated by needle biopsy from other diseases associated with an excess of bilirubin in the blood, obstructive jaundice, or chronic viral hepatitis.

Reactions from Antibiotic Troches

AUSTIN H. KUTSCHER, D.D.S., JACK BUDOWSKY, D.D.S., AND NEAL W. CHILTON, D.D.S., COLUMBIA UNIVERSITY, NEW YORK CITY, report infrequent, slight reactions from bacitracin, tyrothricin, gramicidin, and polymyxin B–bacitracin troches, appreciably fewer than were noted in previous similar studies with Terramycin, Aureomycin, and procaine penicillin G troches.

Reactions to the bacitracin, tyrothricin, gramicidin, and polymyxin B–bacitracin troches were limited primarily to the gastrointestinal tract and included nausea, diarrhea, and taste disturbance. Such effects may be caused by impurities or binders. One case of severe nausea with polymyxin B–bacitracin troches was noted. No other reaction necessitated cessation of therapy. Nevertheless, the employment of these medications should be considered only when specifically required.

In early studies of Terramycin, Aureomycin, and procaine penicillin G troches, reactions were also noted in the oral cavity, pharyngeal passageway, rectum, and anus.

Reactions following the uses of bacitracin, tyrothricin, gramicidin, and polymixin B troches: a controlled study. J. Allergy 25:46-54, 1954.

Simple Spontaneous Pneumothorax

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*Simple spontaneous pneumothorax is usually due to rupture of congenital or acquired emphysematous blebs rather than to tuberculosis, and conservative management is sufficient in most cases.**

A LARGE amount of air, escaping into interstitial tissues, may dissect along the connective tissue bands surrounding blood vessels and form blebs on the pleura. These bullae rupture in one or more places, and air enters the pleural space, causing simple spontaneous pneumothorax.

Diagnosis is made by symptoms at onset and physical, roentgenographic, and fluoroscopic examinations. Sudden sharp chest pain and dyspnea frequently occur, although onset is sometimes gradual, with only slight shoulder ache or chest pain. With a considerable amount of air in the pleural space, cyanosis, rapid respiration, signs of shock, and limitation of chest wall movement on the involved side are noted an hour or so after onset. If intrapleural positive pressure exists, the intercostal spaces may bulge. In most cases, hyperresonance is noted on percussion, except when severe tension of the chest wall prevents vibration and a muffled or dull note is heard.

Roentgenographic and fluoroscopic examinations are important for detecting unsuspected and confirming questionable cases. The degree of collapse and possible displacement of the mediastinum and diaphragm are also determined. The roentgenogram shows a mantle of decreased density at the lung periphery, with no lung markings.

Differential diagnosis includes diaphragmatic hernia, pulmonary cavities, gaseous subdiaphragmatic abscess, and pulmonary aplasias or cysts. Thoracotomy is necessary when the condition cannot be distinguished by roentgenographic examination.

Many patients require only preliminary sedation, reduction of physical activity, and repeated examinations. Air should not be aspirated unless positive intrapleural pressure develops.

Tension pneumothorax is often promptly relieved by aspiration with an 18-gauge needle through the chest wall. If pressure symptoms occur, further aspirations may be necessary. In some cases, air accumulates so rapidly that an indwelling needle or catheter and a check valve are used to allow continuous escape of air until pressure no longer develops. High negative intrapleural pressure should always be avoided. Occasionally, the lung

*Simple spontaneous pneumothorax. Dis. Chest 26:420-441, 1954.

does not reexpand after aspiration, and pleural openings must be closed surgically.

Pleural fluid not absorbing promptly should be aspirated in order to keep the pleural surfaces dry. If hemopneumothorax occurs, blood should always be aspirated. If bleeding persists or is severe, ligation of the vessel and closure of the rent are done. Blood transfusions may be necessary.

Recurrent spontaneous pneumothorax is fairly common.

¶ **PARADOXIC HYPERGLYCEMIA** resulting from increased dosage of insulin is characterized by cyclic glycosuria and deterioration of diabetic regulation but infrequent hypoglycemic reactions. Gerald T. Perkoff, M.D., and Frank H. Tyler, M.D., of the University of Utah, Salt Lake City, find that sharp reduction in the quantity of insulin administered suffices for elderly diabetics but that the dose must be diminished by only 2 or 3 units at a time for juvenile subjects. The determination of hourly excretion of glucose may be a simple test for recognition of the phenomenon.

Metabolism 3:110-117, 1954.

¶ **EPIDEMICITY OF Q FEVER** among livestock handlers during the lambing, calving, and kidding season suggests infected placentae of domestic animals as the reservoir for *Coxiella burnetii (Rickettsia burnetii).* Although the disease usually occurs among persons associated with sheep, cows, and goats, Paul F. Miner, M.D., of Boise, Ida., believes that actual transmission may be effected by dust particles or other vehicles. Since laboratory tests are of little value during acute phases, Aureomycin should be given to patients, especially employees on ranches, who have fever, headache, pharyngitis, and atypical pneumonia unresponsive to penicillin.

Northwest Med. 53:480-481, 1954.

¶ **PERIPHERAL NEURITIS** attributable to isoniazid may be ameliorated by treatment with pyridoxine. Although neurotoxic complications usually occur in alcoholic individuals, Rolf Oestreicher, M.D., Sidney H. Dressler, M.D., and Gardner Middlebrook, M.D., of the National Jewish Hospital and the University of Colorado, Denver, doubt that overindulgence in alcohol alone predisposes to neuritic disturbances. If a patient has neuritis before isoniazid therapy is started, concomitant administration of 8 mg. per kilogram of isoniazid and 25 mg. of the B-complex element orally each day prevents progression.

Am. Rev. Tuberc. 70:504-508, 1954.

Backache after Gynecologic Operations

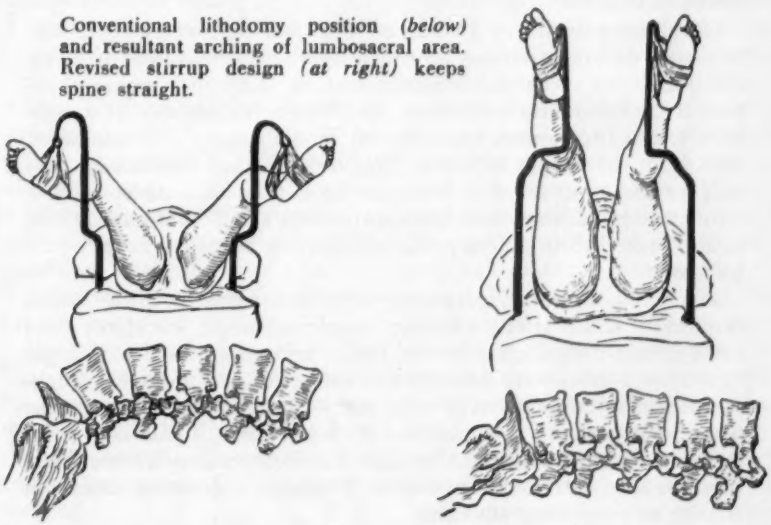
ROBERT G. HUNTER, M.D., GEORGE W. HENRY, M.D.,
AND IVAR J. LARSEN, M.D.
Honolulu

*Postoperative backache may be prevented by using a modified stirrup during gynecologic surgery.**

WITH the greater use of spinal anesthesia and the increased frequency of long operations by the vaginal route, pain involving the lumbosacral and hip joints, adductors of the thigh, quadriceps, and the patellar ligaments often occurs postoperatively. Discomfort may be severe enough to require opiates for several days. The condition has no neurologic basis.

When the patient is supine on the operating table with full extension of the knees, a natural arching of the lumbosacral area results. The use of stirrups then abducts and outwardly rotates the thighs, increasing the arch. Stretching of the adductors of the thigh and the capsule of the hip joint intensifies the discomfort. The loss of muscle tone after spinal anesthesia increases the effect of this position, particularly in the asthenic patient unaccustomed to exercise. Ligaments distorted by the strain of the position are slow in recovering normal tone.

Conventional lithotomy position *(below)* and resultant arching of lumbosacral area. Revised stirrup design *(at right)* keeps spine straight.



*Stirrups and postoperative backache. Obst. & Gynec. 4:344-347, 1954.

When the buttocks are pulled over the edge of the table to facilitate the use of a weighted vaginal speculum, the weight of the suspended leg and often that of an assistant leaning on the leg cause further arching by pressure on the hip joint and capsule.

The use of knee crutches produces almost the same position. Although some of the weight of the legs is decreased, the outward rotation and abduction remain the same. Continued pressure of the crutch on the lateral aspect of the knee is often responsible for peroneal nerve injury.

Roentgenograms of the lower spine demonstrate that the least arch is formed with the lithotomy position when the thighs are acutely flexed on the abdomen and the stirrups are raised to the fullest height with no abduction of the thighs. With this method, exposure of the operative field is improved. In addition, the assistant is not encumbered by the legs and feet and is unable to add weight to the leg by leaning.

Pulmonary Resection and Pregnancy

GEORGE W. CORNER, JR., M.D., AND ROBERT E. L. NESBITT, JR., M.D., JOHNS HOPKINS UNIVERSITY, BALTIMORE, report that lobectomy or pneumonectomy is not incompatible with subsequent pregnancy if the patient is not dyspneic at rest or from slight exertion. Surgery may also be performed during gestation with safety to mother and fetus.

Of 17 pregnancies of 14 women who had pulmonary resections before or during gestation, 12 ended by vaginal deliveries of living children, 1 by successful cesarean section, 2 by therapeutic abortion, 1 by spontaneous abortion, and 1 by term delivery of a stillborn fetus. The woman who aborted spontaneously died one week later from pulmonary infection. Dyspnea or other evidence of pulmonary stress was noted in 4 women. In 1 instance, a patient with a right pneumonectomy had transient cyanosis and vital capacity of 800 cc. just before delivery, but postpartum recovery nevertheless was good.

Generally, however, pregnancy does not seem to cause undue respiratory strain after pulmonary resection. Single lobectomy does not produce a significant loss of tissue, and vital capacity of 1 patient after 2 lobes were resected was above 90% of normal throughout pregnancy. Symptoms of respiratory distress do not always occur when vital capacity is diminished by loss of lung tissue and intrathoracic space because the patient can compensate by breathing more rapidly and more regularly. Pulmonary function does not change as pregnancy advances.

Pregnancy and pulmonary resection. Am. J. Obst. & Gynec. 68:903-915, 1954.

Treatment of Hand Injuries

J. MALCOME ASTE, M.D.
Memphis

*Restoration of motor and sensory functions is the primary goal of surgery for hand injuries.**

SCAR tissue is the greatest hindrance to functional repair of hand lesions. Trauma and sepsis are more hazardous in hand surgery than other types of operations because even slight infection cannot be compensated for and disability occurs after fibrosis.

The primary treatment of open wounds of the hand involves the following general principles:

- Hand is examined, and patient relates cause of injury.
- Decision is made whether or not to suture deep structures immediately.
- Skin is cleansed, and wound is irrigated.
- Bloodless field is attained by tourniquet control.
- Manipulations must be gentle.
- Instruments and suture material should be small.
- Adequate time must be allowed for the operation.

With compound injuries of the hand, as little tissue as is possible should be sacrificed. Since the wound should be closed promptly, split-thickness skin graft may be applied temporarily as a physiologic dressing.

When the wound is old and involves deep structures or when surgery on bones, nerves, or tendons is contemplated, all the scar tissue should be excised and the area covered with a pedicle flap. The flap should be taken from areas adjacent to the wound whenever possible, since skin from distant sources does not contain the complex sensory endings required in the hand.

Tendon repair is accomplished by primary or secondary tenorrhaphy or by tendon graft. Primary repair of the flexor tendons should be performed if the wound is clean and is less than six hours old. Repair may be done within the flexor sheath if only the profundus tendon is sutured and technic is atraumatic.

If the wound is over eight hours old, is untidy, or has previously been tampered with or if the patient is in poor condition, extensive tendon repairs should be deferred. The lesion is irrigated and the skin and subcutaneous tissues may be closed. No sutures larger than No. 0000 catgut are left in the wound. Secondary tenorrhaphy may be completed after three to four weeks if the wound heals without infection.

Tendon grafting is a satisfactory procedure if the original repair fails or if the wound is over six weeks

*Hand injuries: some early and late problems. J. Tennessee M. A. 47:326-328, 1954.

old when first seen. Excessive scar tissue overlying the tendons must be removed, and joint mobility should be good. The donor tendon may be obtained from the lateral extensors of the toes or palmaris longus. Surrounding areolar tissue must be preserved when the tendon is dissected.

Extensor tendon repair is usually satisfactory if the ends are united with 2 or 3 No. 000000 cotton sutures. The wrist and involved fingers must be left in extension for three to four weeks.

When the injury is originally examined, sensory ability should be tested. Loss of sensation is especially crippling when the median nerve is involved. If a damaged median nerve is not united, the patient does not have sensation over the principal tactile portions of the hand, and the thumb and fingers sometimes cannot be opposed.

Nerves generally can be repaired at the time of injury and certainly if the wound condition allows primary tendon suture. The damaged nerve ends should be trimmed with a sharp blade and approximated as closely as possible, using No. 000000 or 0000000 silk on an atraumatic needle.

As soon as possible, the patient is encouraged to soak the hand in warm water and to practice full range of motion. Dynamic splinting may expedite return of function.

Degenerative Rheumatoid Changes

G. D. KERSLEY, M.D., H. S. BARBER, M.D., J. C. F. CREGAN, M.B., AND H. J. GIBSON, M.D., THE ROYAL NATIONAL HOSPITAL FOR RHEUMATIC DISEASES, BATH, AND THE ROYAL DEVONSHIRE HOSPITAL, BUXTON, ENGLAND, state that large cystic areas filled with pus-like material rich in cholesterol are formed either [1] by breakdown of a rheumatoid nodule or [2] by accumulation in a bursa or pouch of synovial sac of necrotic debris which has shed from the synovial surface.

Early rheumatoid nodules consist of fibrotic patches in subcutaneous fat, surrounded by a ring of small lymphocytic foci. First, the area of fibrosis increases, with the lymphocytes occupying a capsular zone of loose texture at the periphery. Later, areas of fibrinoid degeneration and subsequent necrosis occur at the center. Eventually, coalescence and liquefaction occur, resulting in a cyst with a fibrous wall containing necrotic debris.

When the process occurs in a bursa, the synovial membrane becomes engorged and proliferated, and villi form. Superficial necrosis of the surface layer and villi ensues, and the tissue is exfoliated into the joint cavity. A fibrous cyst with products of tissue degeneration in the lumen results.

Degenerative rheumatoid changes. J. Bone & Joint Surg. 36-B:238-243, 1954.

Severe Fractures of the Ankle

RALPH W. COONRAD, M.D., AND EVERETT I. BUGG, JR., M.D.
Duke University, Durham, N.C.

*When severe medial ligamentous injury and disruption of the mortise occur with fracture of the ankle, early open reduction should be done.**

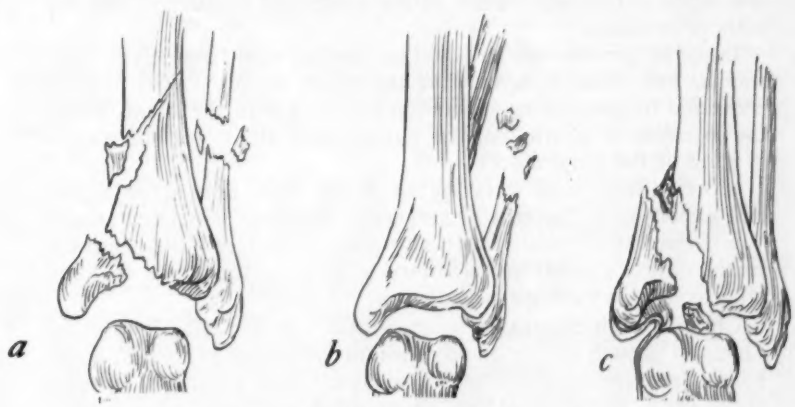
ALTHOUGH most ankle fractures and dislocations can be reduced easily by conservative methods, some injuries require direct exposure.

The most important cause of disability is failure to achieve anatomic reduction. This may be due to [1] a common tendency to be satisfied with a nearly normal reduction, [2] not forewarning the patient that more than one manipulation under anesthesia may be necessary, [3] failure to obtain roentgenograms in true anteroposterior and lateral planes, or [4] overlooking soft tissues trapped between the fragments.

When reduction is not obtained with closed manipulation, surgical reduction should be done before superficial skin necrosis, edema, and other vascular manifestations occur. Fractures deferred for elective repair invariably have poor functional prognosis.

Early open reduction should be done for:

• Single or comminuted fractures involving one-third or more of the anterior or posterior tibial articular surface, with displacement or rotation of the fragment, which are not



Indications for early open reduction

*Trapping of the posterior tibial tendon and interposition of soft tissue in severe fractures about the ankle joint. J. Bone & Joint Surg. 36A:744-750, 1954.

reducible by closed manipulation. These fractures often include part or all the medial malleolus (Fig. *a*).

• Fracture-dislocations of the ankle in which the upper fibular fragment is caught behind the posterolateral ridge of the tibia. Ordinarily, this area must be opened and the bones pried into position before correct alignment of the mortise can be restored (Fig. *b*).

• Severe fracture-dislocations of the ankle in which soft tissues interposed at the fracture site may become trapped within the ankle mortise or between fragments of bone, thus preventing the restoration of alignment by a closed manipulation (Fig. *c*).

Open reduction was successfully performed for 4 patients with severe fracture-dislocation of the ankle joint; 2 subjects had trapping of the posterior tibial tendon, and 2 had interposition of a reflected portion of the deltoid ligament within the medial aspect of the joint space.

Cardiac Anomalies and Physical Growth

FORREST H. ADAMS, M.D., GEORGE W. LUND, M.D., AND ROBERT B. DISENHOUSE, M.D., UNIVERSITY OF CALIFORNIA, LOS ANGELES, AND UNIVERSITY OF MINNESOTA, MINNEAPOLIS, believe that physical growth in children with congenital heart disease is not necessarily retarded.

Growth and development of 229 children were reviewed using the Wetzel grid technic. The lesions studied included patent ductus arteriosus, tetralogy of Fallot, interatrial septal defect, interventricular septal defect, coarctation of the aorta, and pulmonary stenosis without cyanosis.

Impaired growth may be noted in children with large left-to-right shunts, but retardation may be the result of respiratory disease promoted by pulmonary congestion consequent to the shunt. When the infection is controlled, the patient may attain normal stature in spite of the large defect.

Most patients with tetralogy of Fallot have normal physiques and growth rates. Success of surgery to decrease associated anoxemia cannot be correlated with any growth changes. Often, growth retardation is a result of hereditary or in utero factors or of some other condition than the heart lesion.

Children with congenital heart disease are also subject to other causes of growth failure or acceleration. Infectious processes, metabolic derangement, nutritional inadequacy, and emotional disturbances must all be considered. Emotional problems, arising from overprotection and anxiety of the parents, may also be factors.

Observations on the physique and growth of children with congenital heart disease. Pediatrics 44:674-680, 1954.

Diagnosis of Puerperal Hemiplegia

HAROLD STEVENS, M.D.
Georgetown University, Washington, D.C.

*The syndrome of puerperal hemiplegia is frequently misdiagnosed as postpartum eclampsia.**

WHEN sudden headache, convulsions, hemiplegia, and coma occur after delivery in a previously healthy woman, a diagnosis of postpartum hemiplegia may be warranted. Although the condition was once considered fatal, complete recovery is likely.

Severe headache is an early symptom and may persist for many weeks. Generalized or focal seizures are usually succeeded by focal paralysis. Coma is common. Papilledema may occur and the spinal fluid pressure is often elevated. A small or moderate number of red blood cells may be found in the spinal fluid. Sudden loss or impairment of visual acuity occasionally appears concomitantly with symptoms of mental disturbance.

The diagnosis is easily established if the examiner is familiar with the syndrome but neurologic consultation is advisable. Differential diagnosis must exclude postpartum eclampsia, brain tumor, hysterical hemiplegia, cerebral aneurysm, and postpartum psychosis.

Since cerebral venous thrombosis is considered to be the origin of the syndrome, therapy is directed toward [1] resolving and limiting extension of the thrombus, [2] lowering the intracranial pressure, [3] reducing the blood pressure, and [4] preventing convulsions.

Anticoagulants have been advocated as an aid in preventing propagation of the venous clot. However, the danger of producing uterine or cerebral bleeding exists. Since recovery is possible without anticoagulant therapy, the risk involved is not justified.

The elevated intracranial pressure, due to cerebral edema and congestion from venous thrombosis, may be reduced with intravenous hypertonic glucose. Concentrated serum albumin has also been used for this purpose.

The widely fluctuating blood pressure may be a compensatory mechanism to overcome the increased cerebrovascular resistance. Hypotensive drugs would probably nullify this protective reflex with a corresponding drop in cerebral flow and are therefore not recommended.

Convulsions require prompt administration of analeptics during the acute crisis. The exertion associated with the convulsion adds to the patient's stress and further raises intracranial pressure. Sodium phenobarbital intramuscularly is given immediately and repeated as often as necessary.

*Puerperal hemiplegia. Neurology 4:723-738, 1954.

Auricular Neuritis and Facial Palsy

R. WYBURN-MASON, M.D.
London

*Interruption of the great auricular nerve often relieves facial palsy.**

IRRITATION of the great auricular nerve is a frequent cause of lower motor neuron facial weakness. Paralysis results when inflammatory changes are conducted to the facial nerves by connecting fibers.

The auricular nerve is formed by fibers of the second and third cervical nerve roots and communicates with facial nerves about the ear and in the parotid gland. A wide variety of conditions that affect the cervical nerve roots or the auricular nerve produce facial palsy.

Herpes zoster is often complicated by facial weakness after the cervical nerve roots are irritated by, for example, trauma, tumor, or handling of the nerve roots at operation. Irritation causes antidromic impulses to pass through fibers to the great auricular nerve. The stimuli liberate histamine and, possibly, acetylcholine which produce inflammatory changes. Where the fibers join the facial nerve in the region of the parotid gland, the nerve becomes inflamed and palsy results.

Gunshot wounds involving the region of the sternomastoid muscle may be associated with transient facial weakness even though the injury or operation does not traumatize the facial nerve. The great auricular nerve lies over the muscle and inflammation of this nerve evidently causes the palsy.

Pain of *tic douloureux* and concomitant facial paralysis and spasm are probably both caused by a lesion of the great auricular nerve.

Roentgen therapy over the sternomastoid muscle may produce an auricular neuritis and subsequent facial palsy. Occasionally when *alcohol block* of the great auricular nerve is used in treatment of headache and other lesions, the first infiltration attempt is unsuccessful. Irritation of the nerve and facial palsy result.

Fracture of the odontoid process of the axis vertebra, by injuring the roots of the second and third cervical nerves, may be accompanied by transient facial palsy.

Tumor or other *lesions of the upper cervical cord* may be a cause of lower motor neuron facial weakness. The facial nerve is not affected directly but fibers of the auricular nerve are involved.

Regardless of the cause of great auricular neuritis, interruption of the nerve may rapidly cure associated facial palsy. With herpes zoster, the skin lesions also heal.

Rheumatic Bell's palsy is frequently preceded by pain, tingling, or neuralgia over the side of the

*The nature of Bell's palsy. Brit. M. J. 4889:679-681, 1954.

head and neck, around the ear, in the auditory canal, and sometimes on the cheek and around the eye. These areas are supplied by fibers of the auricular nerve, and pain radiates to the same regions when the nerve is injected with alcohol. Auricular neuritis, in some instances caused by exposure to cold or dampness, is probably the primary lesion.

If the greater auricular nerve is infiltrated with 2% procaine, the pain and the swollen, numb, or tight feeling disappear almost at once. When the anesthetic wears off, the pain and paresthesia are often greatly diminished.

¶ PRIMARY AND SECONDARY PYODERMA may be very effectively treated with Polysporin, an antibiotic ointment containing 500 units of bacitracin and 10,000 units of polymyxin B in petrolatum. No failures nor toxic reactions occurred among 577 patients. Bernard J. Pass, M.D., of Nashville, Tenn., and Herbert Rattner, M.D., of Northwestern University, Chicago, find that lesions heal most quickly when the ointment is applied hourly. Impetigo heals invariably within seven days, ecthyma and pyogenic paronychia in two weeks, and sycosis vulgaris within three weeks.

J.A.M.A. 155:1153, 1954.

¶ CHRONIC DISSEMINATED NEURODERMATITIS affects neurotic persons with personality structures based on infantile conflicts. Claude E. Fiske, Ph.D., and Maximilian E. Obermayer, M.D., of Los Angeles observe that such patients differ from other individuals with neuroses primarily by preoccupation with and erotization of the skin and to a lesser extent by such traits as guilt, hostile-dependent relationships, masturbation, and needs for self-punishment and exhibitionism. For these subjects the skin constitutes an uncertain barrier between self and baneful environmental forces.

Arch. Dermat. & Syph. 70:261-267, 1954.

¶ LUPUS ERYTHEMATOSUS of the subacute disseminated and the chronic and disseminated discoid types may be effectively treated with massive amounts of pantothenic acid derivatives and vitamin E. Ashton L. Welsh, M.D., of Cincinnati reports that daily doses of 10 to 15 gm. of salts of the acid and 1,000 to 2,000 mg. of vitamin E resulted in complete clearing or improvement of symptoms in 67 patients. The combined drugs probably stimulate pituitary and adrenal hormonal production, spare other vitamins, and prevent reduction of oxidation.

Arch. Dermat. & Syph. 70:181-198, 1954.

Treatment of Benign Pigmented Moles

CAPT. GORDON H. EKBLAD, M.C., U.S.N.
U. S. Naval Hospital, Corona, Calif.

*Conservative management is adequate for intradermal nevi if biopsy is done, but junctional nevi should be removed or destroyed.**

MOST moles are not treated since the annual rate of malignancy is only 1.2 per million moles. Benign moles are sometimes treated for cosmetic effect or for prophylactic purposes, as when on the soles, palms, pulp of fingers or toes, genitals, or other areas subject to trauma. Lesions showing suspicious alterations should also be excised.

Moles with nevus cells formed at the epidermodermal junction are potentially malignant. Lesions consisting of nevus cells confined to the dermis are less dangerous. Compound nevi consist of junctional and intradermal nevus cells.

The various types of nevi cannot always be differentiated without laboratory study; in fact, a benign nevus and a malignant melanoma may be similar in appearance. Therefore, when a mole is treated, biopsy should be done unless the lesion is destroyed. A histologically proved benign nevus has never become malignant.

An *intradermal nevus* is usually an elevated, smooth, papular lesion but may be verrucous or pedunculated. Color varies from flesh to dark brown; hairs may be imbedded.

This type of mole can usually be shaved off flush with the skin for histologic examination and the base lightly desiccated. In some locations, excision achieves the best cosmetic results. Excision of a benign mole should not be radical but should include a margin of about 2 mm. of normal skin.

A *junctional nevus* is generally a small, smooth, flat to slightly raised lesion, usually without hairs, and brown to deeply pigmented. Nevi on the palms, soles, pulps of fingers or toes, or scrotum are generally junctional.

Junctional moles should be excised. Desiccation is not advisable because no specimen is obtained for microscopic examination. If the patient will not permit excision, the lesion should be destroyed by any method. However, histopathologic study is mandatory for suspicious lesions.

Compound nevi are round to oval, slightly raised, with or without hairs, and moderately to deeply pigmented. Excision is preferred if good cosmetic results can be achieved. If the mole is shaved off and biopsy shows a junctional-type nevus, the area should be excised or destroyed deep enough to insure eradication of remaining nevus cells.

*Treatment of benign pigmented moles. Arch. Dermat. & Syph. 70:399-410, 1954.

SPECIAL EXHIBIT

FRUCTOSE IN DIABETIC EMERGENCIES

HENRY DOLGER, M.D.

S. KUPFER, M.D., J. J. BOOKMAN, M.D.

and J. CARR, Ph.D.

Mount Sinai Hospital, New York City

—

Fructose metabolism in the diabetic patient is similar to that of the healthy individual even in the absence of insulin. The sugar offers a source of carbohydrate which, without insulin, can:

- Enter directly into the glycolytic cycle
- Become immediately available for glycogen formation
- Decrease ketone production and protein catabolism without aggravating hyperglycemia or glycosuria or provoking diuresis
- Bypass the inhibitory block to insulin which characterizes the early hours of diabetic acidosis

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A Modern Medicine Exhibit adapted from a presentation made at the convention of the American Medical Association in New York City.

INTRODUCTION

• Blood and urine fructose and glucose values were determined periodically during the constant intravenous infusion of 100 gm. of either carbohydrate in 10% solution in four-hour periods. The investigation was carried out in:

- Healthy individuals and stabilized diabetic patients as controls
- Patients in diabetic ketosis and acidosis
- Preoperative and postoperative diabetic surgical patients
- Diabetic patients requiring emergency parenteral carbohydrate
- Diabetic patients with liver damage

PHYSIOLOGY OF *FRUCTOSE*

1] FRUCTOSE forms more liver glycogen than glucose.

2] Livers of diabetic animals utilize FRUCTOSE at a normal rate without requiring insulin.

3] Metabolism of FRUCTOSE differs from that of glucose in both healthy individuals and diabetic patients. In the diabetic patient FRUCTOSE is metabolized normally.

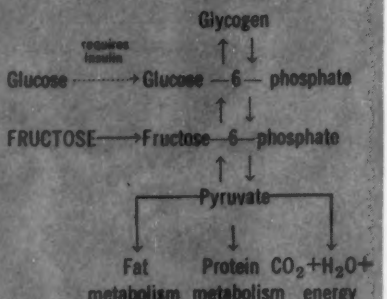
4] FRUCTOSE causes less hyperglycemia when given intravenously than does glucose.

5] Less urinary sugar is lost after FRUCTOSE infusion than after glucose in both healthy persons and diabetic patients.

6] The utilization of FRUCTOSE is not impaired by acidosis.

7] Fasting does not impair FRUCTOSE metabolism.

SCHEMATIC PATHWAY OF CARBOHYDRATE METABOLISM IN DIABETES MELLITUS



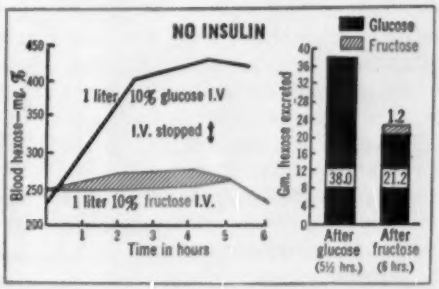
Glucose requires insulin to be utilized

Fructose does not require insulin to enter the carbohydrate metabolic cycle

is the desirable carbohydrate for intravenous alimentation in diabetic patients

Utilization without Insulin

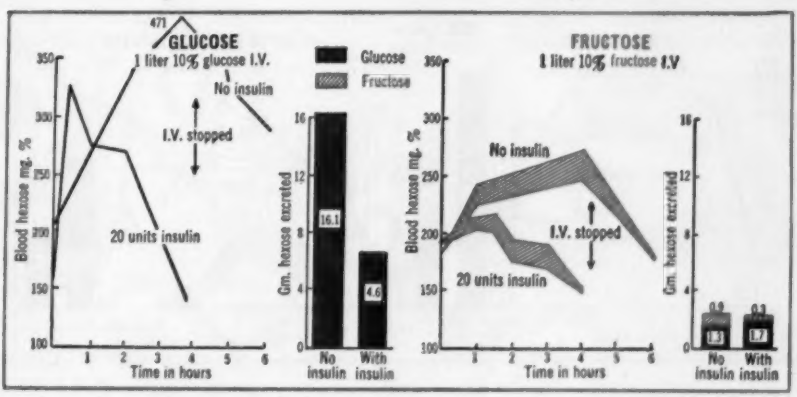
• Degree of glycosuria and hyperglycemia after glucose and fructose in a patient with severe diabetes. Note the relatively static blood sugar level after fructose compared with the pronounced rise after similar amounts of glucose. Glycosuria, induced by maintenance of patient's hyperglycemia, was reduced by one-half when fructose was administered. This is typical of the results obtained pre- and postoperatively.



PATIENT M. H., female, age 28. Usual daily insulin requirement, 120 units. Long-acting insulin withheld for three days, regular insulin withheld sixteen hours before infusion. Constant infusion of 100 gm. glucose or fructose as 10% solution given on successive days.

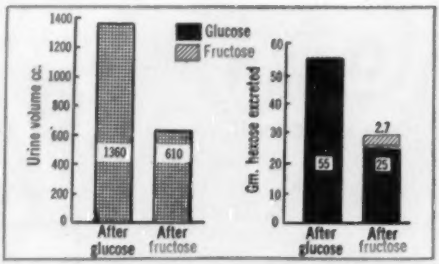
PATIENT L. N., male, age 56. Previously undetected diabetes. Admitted with infectious hepatitis. Fructose is more efficiently utilized than glucose with or without insulin.

In the diabetic patient with liver damage, fructose utilization appears even more strikingly advantageous than glucose.



Utilization without Insulin

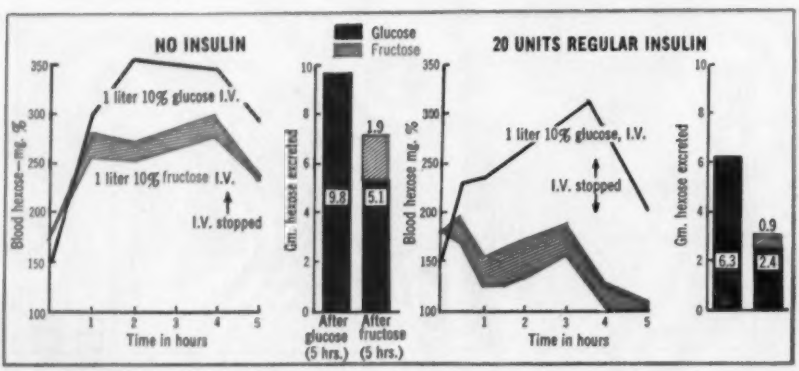
• Diuresis and urinary sugar in mild ketosis; 1 liter 10% glucose or fructose in two and one-half hours—no insulin. Although both glucose and fructose can correct slight ketosis, glucose does so at the expense of water balance and with excess carbohydrate loss, in contrast to fructose.



PATIENT N. H., male, age 57. Bronchial pneumonia with glycosuria and acetonuria. Given intravenous carbohydrate to abolish ketonuria. Fructose resulted in greater carbohydrate retention and less loss of body water than glucose.

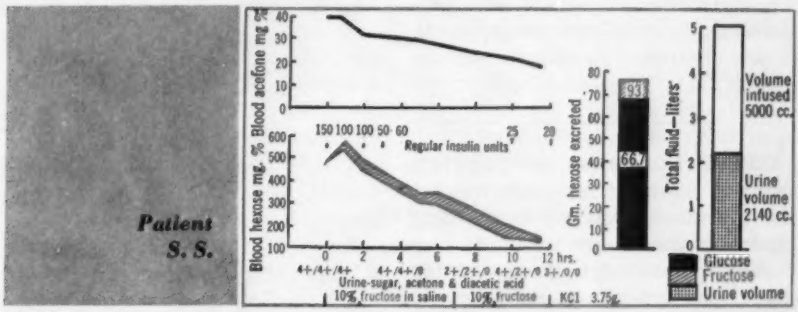
PATIENT B. F., female, age 45. Slight diabetes not requiring insulin. Constant infusion of 100 gm. glucose or fructose as 10% solution given on successive days, with and without insulin.

Rate of fall of blood glucose after infusion of fructose with insulin is considerably greater than that after glucose with insulin.



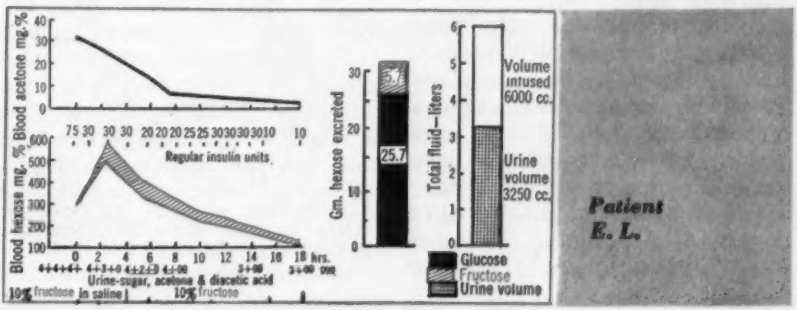
Ketosis and Acidosis

• With fructose, ketonemia and ketonuria are reduced from the very beginning of treatment without inducing insulin resistance. Striking carbohydrate retention is possible in the treatment of acidosis; after infusion of 600 gm. of fructose in eighteen hours, the patient excreted a total of 31.4 gm. of carbohydrate—5.7 gm. of fructose and 25.7 gm. of glucose. A positive carbohydrate balance of 570 gm. in the first eighteen hours of treatment is extremely unusual. Along with the deficit in water and electrolytes, every case of diabetic acidosis presents an absolute deficit of carbohydrate.



PATIENT S. S., male, age 34. Usual daily insulin requirement: 120 units. Admitted in severe acidosis after three days without insulin; 3 liters 10% fructose in saline administered in six hours; an additional 2 liters in water given in next six hours. Rapid relief of ketosis and no evidence of insulin resistance.

PATIENT E. L., female, age 45. Diabetes for four years, requiring 20 units protamine zinc insulin daily. Admitted in severe acidosis after three days without insulin. Severe diarrhea and vomiting. Stuporous, marked Kussmaul breathing, and dehydration. Carbon dioxide content, 14 vol. %. Ketosis rapidly relieved, showing fructose utilization.



Treatment of Acute Nasal Injuries

WALTER J. AAGESEN, M.D.
Anderson, Ind.

LEWIS E. MORRISON II, M.D., AND CARL B. SPUTH, JR., M.D.
Indianapolis

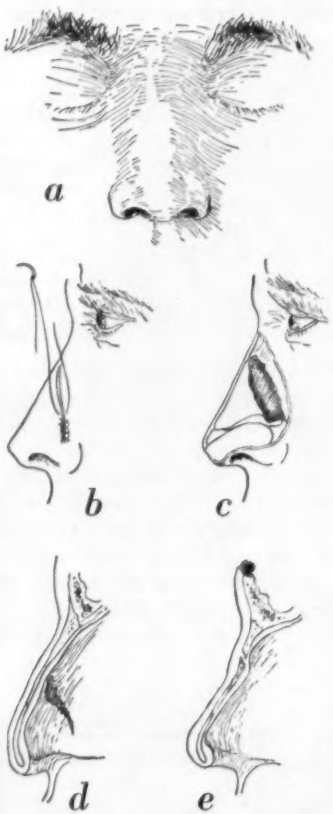
*Examination to establish diagnosis of acute nasal injuries is best performed in the operating room, where treatment facilities are available.**

VISUAL examination and palpation are not sufficient for acute injuries of the nose. Soft tissue swelling and ecchymosis are often so pronounced that accurate evaluation by external means is not possible. Roentgenograms frequently do not show damage.

For proper examination, facilities for complete anesthesia and a suction apparatus should be available; preexamination sedation may be helpful. Internal examination is not attempted until the nose is cleansed of debris and clots. Good illumination is provided by a head mirror or light.

With pronounced soft tissue swelling, infiltration with procaine and hyaluronidase solution allows reasonably accurate visual examination and palpation. Mucosal anesthesia is provided by cocaine flakes on epinephrine-moistened cotton.

Nasal injuries are divided into 5 types: [1] contusions, [2] lacerations, [3] hematomas, [4] fractures



Classification of nasal injuries: contusion [*a*], laceration [*b*], hematoma [*c*], cartilage fracture [*d*], and bone fracture [*e*].

*How to handle acute nasal injuries. Arch. Otolaryng. 60:367-370, 1954.

or dislocations of the septal cartilage, and [5] fractures of the nasal bones, with or without dislocation.

Contusions—Symptoms include ecchymosis of the nose and eyes, edema of the nasal dorsum, and tenderness (Fig. *a*). Injection of hyaluronidase in an anesthetizing solution causes a rapid disappearance of swelling and helps detect fracture. A tape dressing is placed on the nose, and cold applications are used for twenty-four hours.

Lacerations—Injured tissues are carefully cleansed and debrided, using adequate anesthesia (Fig. *b*). Skin margins are approximated with closely placed fine sutures. The nose is then packed with cod-liver-oil gauze, externally taped, and dressed with a Stent dental compound. Antibiotics are administered, and, if necessary, protection against tetanus and gas bacillus is given. A pressure dressing on the eyes helps prevent swelling and promotes healing.

Hematomas—Frequently, hematoma occurs in the septum or between the upper lateral cartilage and the nasal bone (Fig. *c*). Hematoma of the septum is usually associated with laceration, fracture, or dislocation of the septal cartilage. The septal mucosa appears blue and often is so swollen that both nasal passages are occluded. When treatment is delayed, absorption occurs, with subsequent saddle deformity of the nasal dorsum. The tumor is incised and drained, and the nose is packed with cod-liver-oil gauze.

In children, saddling is repaired in six to eight months by cartilage implants in the septum and on the dorsum. In adults, an implant from the iliac crest is used, after an adequate waiting period.

When hematoma occurs between the upper lateral cartilage and the nasal bones, a bluish swelling results high inside the nose between the septum and the lateral wall. Prompt incision and drainage are done, and the nose is packed, taped, and splinted. Antibiotics are given.

Fractures or dislocations of the septal cartilage—A downward displacement and subsequent buckling or fracture of the cartilage often occur with nasal injuries (Fig. *d*). Septal injury requires open reduction. Both mucoperichondrial flaps are elevated and the cartilage and bones inspected through a hemitransfixion incision at the caudal end of the septum. Small fragments of cartilage and bone are removed or repositioned. A depressed fracture of the nasal bones can be reduced by elevation through the septal space. The nose is then packed, taped, and splinted.

Fractures of the nasal bones—Symptoms of a fracture of the nose (Fig. *e*) are hemorrhage, deformity, swelling, pain, nasal obstruction, and ecchymosis around the nose and eyes. A roentgenogram is essential with probable facial bone fractures.

Simple fracture is reduced by intranasal elevation with a blunt instrument. For severe depressed fracture, open reduction by the rhinoplastic approach is necessary. Depression of the cartilaginous vault is repaired by a cartilage graft to the nasal dorsum. For compound fracture, a laceration made in the skin helps in repositioning bones.

Extraprostatic Urinary Retention

HERBERT S. TALBOT, M.D.
Veterans Administration Hospital, West Roxbury, Mass.

*Careful preoperative evaluation of micturitional function aids in preventing urine retention after prostatectomy.**

An imperfect adjustment between the expulsive power of the detrusor muscle of the bladder and the resistance at the bladder neck and posterior or distal urethra results in retention of urine. Disorders that commonly contribute to dysfunction, associated with prostatic enlargement or other obstruction at the bladder neck, include [1] stricture of the distal urethra, [2] coincidental detrusor dysfunction, and [3] detrusor dysfunction because of chronic partial obstruction.

A preexisting *urethral stricture* may be overlooked, particularly if prostatectomy is not transurethral, since attention is usually focused on the prostatic obstruction. Careful calibration of the urethra, including urethrographic examination, should be done for every patient, even if the obstruction is believed to be primarily at the bladder neck. If a stricture is found, dilation at suitable intervals is usually sufficient.

Dysfunction of the detrusor, with inadequate expulsive force, may occur coincidental to obstruction at the bladder neck. Therefore, cystometric studies to detect detrusor inadequacy should be made routinely of all patients with micturitional disturbances. With dysfunction, the cystogram ordinarily shows a large, smooth, overdistended bladder.

Usually, a neurogenic basis exists with tabes dorsalis, diabetes, or multiple sclerosis, and a careful neurologic examination should be made when necessary.

The largest group of patients with functional inadequacy of bladder muscles is comprised of individuals with *detrusor dysfunction due to partial obstruction,* which leads to chronic overdistention and usually

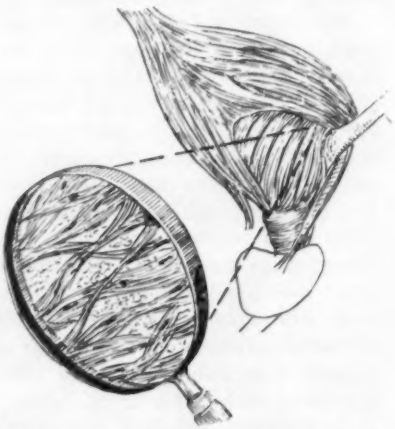


Fig. 1. Scarring of the detrusor, with microscopic view.

*Extraprostatic factors in urinary retention. New England J. Med. 251:420-425, 1954.

Fig. 2. Characteristic collapse of empty bladder with detrusor dysfunction.

infection. The first response of the bladder wall to obstruction is hypertrophy. Eventually, as obstruction increases, the propulsive force becomes inadequate and infection supervenes. The result is chronic cystitis and scarring. The bladder is large, with a capacity of as much as 2,000 or 3,000 cc., and characteristically collapses in large, thick folds.

If the obstruction can be eliminated while the bladder muscle still possesses functional capacity, the condition is reversible by prompt drainage rather than early prostatectomy. No precise measure exists of the degree of improvement of detrusor function to be expected before surgical treatment is undertaken. Once bladder function has been thoroughly investigated and the patient's general condition permits, the obstruction should be surgically removed.

If function remains inadequate after recovery from operation, conservative measures are instituted. Continuous drainage for a few days is the first procedure; tidal drainage is an excellent means of conditioning the detrusor and aids in improving bladder hygiene. The catheter is then removed, and the patient voids at fairly frequent intervals, usually one hour. Nocturnal overdistention is prevented by purposeful awakening to void.

If urine volume can be kept at about 240 to 270 cc., the likelihood of voluntary emptying is greater than if the bladder is more distended. Changes in the bladder wall may have so impaired sensory innervation that the patient is not aware that the bladder is filling until overdistention occurs. Frequent voluntary emptying prevents this chronic condition.

Occasionally, bladder function is not restored by these methods, and surgical intervention is necessary. Partial cystectomy, removing the redundant portion of the bladder wall, is usually successful.

¶ URINARY FREQUENCY of persons with small and irritable bladders without demonstrable genitourinary disease may be controlled by Banthine. When the drug is given in doses of 50 or 100 mg. three or four times a day, John H. Detar, M.D., Sam D. Graham, M.D., and Edward L. Corey, M.D., of the University of Virginia, Charlottesville, find that the vesical capacity may be increased from 200 cc. to as much as 500 cc.

J. Urol. 72:45-50, 1954.

Diagnosis and Therapy of Enuresis

ROBERT W. MC ALLISTER, M.D.
Macon Hospital, Macon, Ga.

*A simplified etiologic classification of urinary incontinence aids diagnosis.**

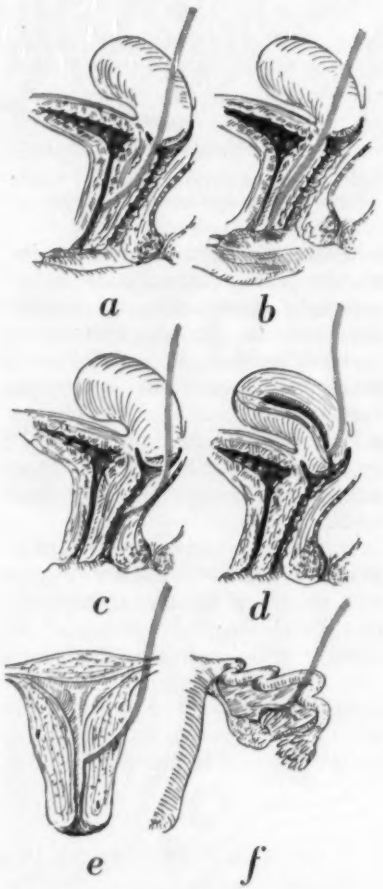
LEAKAGE of urine from the bladder or ureters within the vesical or vaginal area is only a symptom. Careful history and physical examination generally reveal the underlying disease.

Accurate diagnosis is especially essential if surgery is considered. Unnecessary and unsuccessful procedures can be avoided if the following etiologic classification is kept in mind:

- Emotional
- Irritative
- Obstructive
- Traumatic
- Neurogenic
- Malignant degenerative
- Anomalous (urinary tract)

Nocturnal enuresis in children is almost always emotional in origin. Incontinence does not occur during the day. Resolution of emotional difficulties is preferable, but treatment is usually symptomatic. Drugs used include Benzedrine to produce less sound sleep, Banthine to relax the detrusors, and ephedrine to increase urethral sphincteric tone; operations or mechanical or electrical devices are sometimes effective.

Irritation caused by infections,



With ureteral ectopia in females, the ureter may enter [*a*] the urethra, [*b*] the vestibule, [*c*] the vagina, [*d*] the cervix, [*e*] the uterine cavity, or [*f*] Gartner's duct.

*Urinary incontinence as related to general practice. South. M. J. 47:949-954, 1954.

stones, tumors, foreign bodies, or instrumentation produces uncontrollable urge to urinate. Obstruction by prostate glands, urethral strictures, tumors, congenital urethral valves, bladder neck contractures, urethral stones, or foreign bodies may produce an overdistended bladder with overflow incontinence. Therapy of enuresis caused by irritation or obstruction is directed toward removal of the underlying cause.

Trauma, usually surgical, to the female urinary tract may produce vesicovaginal, ureterocervical, or ureterovaginal fistulas. Surgical closure is attempted, but nephrectomy may be necessary for ureteral fistulas. Stress incontinence sometimes occurs after childbirth or cystocele repairs. Suprapubic vesicourethral suspension procedures may be effective if urethral sphincter plication fails.

Incontinence is especially likely after prostatectomy when perineal excision is done.

Any lesion affecting the brain, spinal cord, or reflex arc may cause neurogenic incontinence. Enuresis may be the first symptom of tabes, pernicious anemia, or diabetes.

Malignant tumors of the bladder or vagina may erode and form fistulas. Incontinence is usually associated with a terminal state and is not a therapeutic problem.

Extrophia of the bladder, epispadias, and ectopic ureter are nonobstructive congenital anomalies that cause incontinence. Extrophia and epispadias are easily diagnosed by physical examination and should be treated surgically.

Ureteral ectopia causes incontinence only in females because the defect is proximal to the external sphincter in males (see illustration).

Ectopic ureter is rarely diagnosed early. The anomaly should be suspected when a young female has constant enuresis, normal emptying of the bladder, and episodes of fever, sometimes with chills. Cystoscopic and urographic examinations establish the diagnosis. Surgical correction is relatively simple.

Diagnosis of Lipoma of the Colon

BERNARD S. WOLF, M.D., MYRON MELAMED, M.D., AND MANSHO T. KHILNANI, M.D., MOUNT SINAI HOSPITAL, NEW YORK CITY, report that colonic lipomas of 3 cm. or more in diameter may be diagnosed accurately by preoperative roentgenograms.

When the colon is filled with barium, a lipoma is seen as an intraluminal defect with sharp, smooth contours. Lobulations are occasionally identified. Because of the soft nature of the tumor, the filling defect is not constant in shape. After evacuation, contraction of the bowel wall produces pronounced elongation.

All large lipomas have pedicles of variable length; the width of the base of the pedicle aids differentiation from adenomatous polyps.

Lipoma of the colon. J. Mt. Sinai Hosp. 21:80-86, 1954.

Prevention of Fire and Explosion

GEORGE J. THOMAS, M.D.
University of Pittsburgh

*Ignition sources in the operating room should be eliminated or controlled in order to avert anesthetic accidents.**

MANY explosions in hospitals are caused by electric sparks setting off gases used in anesthesia. Static electricity should not be allowed to accumulate; paths can be provided to conduct electrostatic charges away as fast as generated.

Floors may be conductive or have metal dividing strips closely placed. Each piece of equipment should be grounded with two chains placed diagonally. The chains should make long-line contact with a conductive floor or touch more than one metal strip.

If a floor has high resistance and no metal strips, towels can be used for grounding. A moistened towel is folded lengthwise in contact with the skin under the patient's shoulder and tucked between mattress and operating table; wet towels are extended from the base of the table to the floor and from the foot of the gas machine to the floor. The anesthetist's foot and stool touch one or both towels.

The anesthetic equipment should have conductive rubber breathing tubes, mask, and bags. Plastic connectors are nonconductive. Conductive rubber coverings are recommended for mattresses, pads, pillows, and stretcher carriers. Tables, stands, and stools should be equipped with conductive material at points of contact with the floor.

Wool blankets, plastic sheets, and synthetic fabrics are not suitable. If cotton blankets are warmed, excessive loss of moisture must be prevented. Hospital personnel should use cotton uniforms and conductive shoes.

Electrical equipment is another source of ignition and must be explosionproof and in good repair. Accidental separation of receptacles and plugs should be impossible, and heaters, plugs, open motors, and switches must be out of range of combustible gas.

High-frequency cauteries or coagulators should not be used nearer than 2 ft. from the mouth of a patient receiving flammable anesthesia unless a rubber sheet and wet drapes are applied. If electrocauterization is required during eye, ear, nose, or throat surgery and the patient is already anesthetized with a flammable mixture, a test is made first. After the patient breathes room air for at least three minutes, a sample of exhaled air is tested in another room over an alcohol lamp. Open flames from Bunsen burners,

(Continued on page 130)

*Fire and explosion hazards in hospitals. Journal-Lancet 74:415-420, 1954.

Cortef*
for inflammation, neomycin for infection:

1. Neo-Cortef® *ointment (topical)*

Each gram contains:

Hydrocortisone acetate . . . . . 5 mg.
(0.5%) or 10 mg. (1%) or 25 mg. (2.5%)
Neomycin sulfate . . . . . 5 mg.**
Methylparaben . . . . . 0.2 mg.
Butyl-p-hydroxybenzoate . . . 1.8 mg.

Supplied:
5 Gm. and 20 Gm. tubes in plastic cases.

2. Neo-Cortef® *ophthalmic ointment*

Each gram contains:

Hydrocortisone acetate 15 mg. (1.5%)
Neomycin sulfate . . . . . .5 mg.**

Supplied: 1 drachm applicator tubes

3. Neo-Cortef® *drops (eye and ear)*

Each cc. contains:

Hydrocortisone acetate 15 mg. (1.5%)
Neomycin sulfate . . . . . 5 mg.**

Supplied: 5 cc. dropper bottles

*TRADEMARK
**EQUIVALENT TO 3.5 MG. NEOMYCIN BASE

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

Labyrinthine Disturbance Recognized as Cause of Vertigo

Vertigo, according to Swartout, is primarily due* to a disturbance of those organs of the body that are responsible for body balance. When the posture of the head is changed, the gelatinous substance in the semicircular canals begins to flow. This flow initiates impulses which are transmitted to the vestibular nuclei. From this point impulses are sent to different parts of the body to cause vertigo.

Some impulses reach the eye muscles and cause nystagmus; some reach the cerebellum and skeletal muscles and righting of the head results; others activate the emetic center to result in nausea, while still others reach the cerebrum making the person aware of his disturbed equilibrium. *Vertigo may be caused by a disease or abnormal stimuli of any of these tissues involved in transmission of the vertigo impulse, including the cerebellum and end organs.*

A possible explanation of Dramamine's action is that it depresses the overstimulated labyrinthine structure of the inner ear. Depression, therefore, takes place at the point at which these impulses, causing vertigo, nausea and similar disturbances, originate. Some investigators have suggested that Dramamine may have an additional sedative effect on the central nervous system.

Repeated clinical studies have established Dramamine as valuable in the control of the symptoms of Ménière's syndrome, the nausea and vomiting of pregnancy, radiation sickness, hypertension vertigo, the vertigo of fenestration procedures, labyrinthitis and vestibular dysfunction associated with antibiotic therapy, as well as in motion sickness.

Any of these conditions in which Dramamine is effective may be classed as "disease or abnormal stimuli"* of the tissues including the end organs (gastrointestinal tract, eyes) and their nerve pathways to the labyrinth.

Dramamine (brand of dimenhydrinate) is supplied in tablets of 50 mg. and liquid (12.5 mg. in each 4 cc.). It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. G. D. Searle & Co., Research in the Service of Medicine.

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*Swartout, R., III, and Gunther, K.: "Dizziness": Vertigo and Syncope, GP *8*:35 (Nov.) 1953.

matches, alcohol lamps, or cigarets should be prohibited in the vicinity of anesthetics.

Roentgen-ray and fluoroscopic machines can cause fire or explosion, but shockproof models decrease the danger. Endoscopic instruments that operate on 6 to 8 volts are not dangerous.

The carbon-dioxide absorption technic in administration of inhalation agents is recommended. The patient and gas machine are touched before vapors or gases are released. The mask should be connected to the apparatus before contact is made with the face, and a nonflammable mixture is used until all contacts are made.

Caution must be exercised if anesthetic appliances are moved or connections altered during anesthesia. Moving the patient with the gas machine disconnected is safer. When connection changes are made, each part should be in the anesthetist's hands.

Other safety methods include removing paper wrapping before placing the gas cylinder in service so the label is clearly visible. Oil, grease, and flammable liquids should not come in contact with cylinders, valves, gauges, or fittings or be used for lubrication.

Dust and dirt can be cleaned from the cylinder outlet by slightly opening and closing the valve before applying any fitting. The valve should always be opened slowly. Use of oxygen fittings for other equipment is not permissible. Hospital personnel should not mix gases in cylinders.

Ether must be properly stored; sunlight may cause an explosion.

Treatment of Ophthalmic Infections

JAMES H. ALLEN, M.D., TULANE UNIVERSITY, NEW ORLEANS, observes that duplicate examinations of secretion smears and scrapings by Gram's method and Wright's or Giemsa's stain are valuable for diagnosis, prognosis, and selection of immediate treatment for superficial eye infections. When possible, the infectious agent should be isolated and sensitivity to therapeutic drugs determined.

For immediate treatment, a mercurial antiseptic or sulfonamide is given for slight infections while a broad-spectrum antibiotic may be used for severe infections. When applied topically, medication is given at frequent intervals in high concentrations. The efficacy of aqueous solutions can be prolonged by adding a methyl cellulose vehicle. In oral or parenteral administration, adequate blood levels must be maintained.

Topical anesthetics, cortisone, and ACTH should not be used. If sedation or analgesia is necessary, oral administration is preferable. Photophobia may be controlled by mydriatics or cycloplegics.

Principles of treatment of infectious diseases of the lids, conjunctiva and cornea. Mississippi Doctor 32:78-81, 1954.

Enriched Bread

a Valiant Guardian Against Deficiency Disease

As a result of the nationwide enrichment of bread, the average American consumes notably more thiamine, riboflavin, niacin, and iron.[1] Enriched bread has thus served as a vigilant guardian against beriberi, ariboflavinosis, pellagra, and iron-deficiency disease.[2]

According to calculated values, the food supply of the nation during 1942-1948 provided 25 per cent more thiamine, 10 per cent more riboflavin, 15 per cent more niacin, and 14 per cent more iron than it would have without the nationwide enrichment of bread and flour.[3,4]

In consequence of this nutritional enhancement of the nation's food supply, enriched bread has been a material aid in improving national nutritional health.[2,4,5,6]

Enriched bread also supplies important amounts of high-grade protein, calcium, and nutrient energy. Its protein, comprising flour protein and milk protein, contributes significantly to sound growth and tissue maintenance.

1. Groggins, P.H.: The High Price of Eating Well, J. Agr. & Food Chem. *1*:1124 (Nov. 25) 1953.
2. Sebrell, W.H., Jr.: Trends and Needs in Nutrition, J.A.M.A. *152*:42 (May 2) 1953.
3. Nutrients Available for Consumption per Capita per Day, 1909-1948, United States Department of Agriculture, Miscellaneous Publication 694, 1949.
4. Jolliffe, N.: The Pathogenesis of Deficiency Disease, in Jolliffe, N.; Tisdall, F.F., and Cannon, P.R.: Clinical Nutrition, New York, Paul B. Hoeber, Inc., 1951, chap. 1.
5. Flour and Bread Enrichment, 1949-50, The Committee on Cereals, Food and Nutrition Board, National Research Council, 1950.
6. Sherman, H.C.: The Nutritional Improvement of Life, New York, Columbia University Press, 1950, pp. 86-87.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

AMERICAN BAKERS ASSOCIATION

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Symposium on Constipation

FROM THE CONFERENCE OF THE SECTION OF BIOLOGY OF THE NEW YORK ACADEMY OF SCIENCES, 1953*

Functional Colitis

SARA M. JORDAN, M.D.
Lahey Clinic, Boston

MALTREATMENT of the colon by the patient is the most common cause of colonic dysfunction. Rest for the organ and education of the patient are the chief aims of therapy.

Functional, spastic, or mucous colitis is not truly inflammatory; functional disturbance of the small bowel or even the stomach and biliary tract may be associated. Outstanding symptoms are distress, distention, and constipation. In 20% of cases, diarrhea occurs alone or alternates with retention of feces. Discomfort varies from little or none with atony to extreme pain and incontinence with spasm. Belching is common. Sitophobia, nausea and vomiting, and malnutrition may result.

Diagnosis is made chiefly by radiographic examination. The small bowel is generally hypermotile, and the head of a barium meal may reach the rectum in three hours. The first barium enema is given without preliminary purge. Diagnostic criteria are speed of filling, depth and frequency of haustral markings, and spastic or lax caliber. Trapped gas in the splenic flexure may account for pain in the left upper quadrant or palpitation from subdiaphragmatic pressure.

Temporary dysfunction caused by a mental upset subsides with psychotherapy. Habitual colonic disturbance results when the psychic disorder becomes established or when the digestive tract is deranged by such factors as poor diet, overuse of laxatives, or excessive smoking.

Hospital care may be warranted when pain is severe and dysfunction prolonged. Heat is applied to the abdomen, and antispasmodics and weak sedatives may be given. Laxatives are omitted, but 3-oz. retention oil enemas or 1 to 3 pt. of saline may be used.

A bland diet is provided in small meals every two hours. Cooked white cereals, milk toast, soft-boiled or poached eggs, custards and junkets, warm milk, weak tea, and coffee with milk are allowed. Between meals, 6 glasses of hot water are taken daily.

Variety is increased gradually as discomfort subsides. On discharge, the diet is well balanced but excludes fried foods; pastries; raw vegetables except lettuce, celery, and carrots; uncooked fruits other than orange juice with hot water; and pork except broiled bacon.

*The colon: its normal and abnormal physiology and therapeutics. Ann. New York Acad. Sc. 58:377-379, 380-388, 398-402, 416-425, 426-437, 438-454, 455-462, 503-512, 1954.

PHOTOGRAPH BY RUZZIE GREEN

"My throat sure feels better"

TRACINETS®

BACITRACIN-TYROTHRICIN TROCHES WITH BENZOCAINE

Actions and Uses: With TRACINETS you can readily relieve afebrile mouth and minor throat irritations in your young patients—and in older ones, too. Acting together, bacitracin and tyrothricin are truly synergistic. Soothing local relief is afforded by benzocaine.

In severe throat infections TRACINETS Troches, by their local action, supplement antibiotic injections.

Quick Information: Each TRACINETS Troche contains 50 units of bacitracin, 1 mg. of tyrothricin and 5 mg. of benzocaine. Available in vials of 12.

Candy, nuts, and undigestible foods like baked beans and oily fish are prohibited. Smoking should be stopped and alcohol used only in moderation, well diluted, and without ice.

Dietary restriction may be necessary for only a few weeks or an entire lifetime.

Bowel function is established gradually. The criterion is good fecal consistency rather than strict regularity of passage. To promote a sense of security, instructions are given to take oil or saline enemas if necessary.

Therapy for Obstipation

KEITH S. GRIMSON, M.D.
Duke University, Durham, N.C.

CHRONIC obstruction and great enlargement of the colon may be due to Hirschsprung's disease or to an acquired lesion such as fecal fistula.

Medical treatment is usually adequate for congenital or acquired obstipation. Sometimes segments of bowel are removed, preserving the rectum and ileocecal valve. Colostomy is done only in emergencies.

Megacolon is of 3 main types.

1] The colon is uniformly involved and the rectum enlarged or easily dilated. Surgery is not necessary. Strong cathartics are given weekly and enemas at midweek intervals. Each morning 25 mg. of Urecholine chloride is given orally, and 15 mg. is administered midmorning and midafternoon.

2] The upper sigmoid and descending colon are much expanded, with or without proximal and distal enlargement. This type of megacolon, sigmoid achalasia, is often attributed to complete absence of ganglion cells in the myenteric plexus. However, activity can sometimes be induced by parasympathetic drugs. Since function is decreased rather than totally lacking, conservative management is recommended.

Therapy is the same as when involvement is uniform, though in some cases fecal impactions must be broken up manually every few months. After childhood, the bowel usually dilates to the anus and causes little trouble.

3] The proximal colon is evenly dilated down to a normal segment of sigmoid colon and normal rectum. Segmental resection is recommended. Apparently the best technic is to preserve the ileocecal valve by joining a short length of cecum to a stump of lower sigmoid. If the valve is removed, gas and liquid may regurgitate and collect in the terminal ileum, causing intermittent colic.

Acquired obstipation is also a medical problem, as a rule. If motility is severely affected, with greatly delayed evacuation and progressive elongation of the large bowel, partial colectomy may be successful.

Physiologic and Psychologic Factors

THOMAS P. ALMY, M.D.
Cornell University, New York City

CONSTIPATION involves defects in colonic motility, in the integrated mechanism of defecation, or both. The disturbance is generally due to

several factors that are intricately mingled.

Contents of the colon are moved to the rectum by brief, infrequent peristaltic rushes, usually initiated by the gastrocolic reflex when food or drink is swallowed. The reflex may be halted or reduced by fasting, maintenance on a low-residue ulcer diet, or moods of depression or withdrawal.

Peristalsis is retarded by weakened contractions and by strong segmental movement with spasm. Spastic occlusion may be produced by inflammation or an infected tumor, but the most common cause is emotional stress. When a person is angry, the sigmoid may close with a vigorous, sustained grip sufficient to block a proctoscope.

When colonic motility is impaired, feces are delayed at or above the sigmoid, and the rectum is empty except for hard pellets. With faulty defecation, the rectum holds large masses of ordinary or soft consistency.

The newborn child has a simple defecation reflex. Movement is most commonly inhibited by anal lesions. As toilet training begins, conditioning becomes more complex and a temporary change in daily habits may cause constipation.

Some individuals do not visit the toilet without strong urging and come to depend on drugs. Spasm and irregularity are increased by worry and chemical irritation.

Less common forms of constipation are caused by opiates, lead poisoning, hyperparathyroidism, or myxedema. Atony of the colon is seldom if ever primary, that is, unrelated to reduced food intake, bad habits, colonic spasm, or anal disorders.

Stimulant Laxatives

JANET TRAVELL, M.D.
Cornell University, New York City

USE of irritant cathartics is sometimes justified—for example, after vermifuges or costive agents are administered, in preparation for abdominal radiographic examination, after dietary indiscretion, or during bed rest.

Stimulant laxatives should not be used during menstruation, pregnancy, or lactation or when the patient has intestinal obstruction, abdominal pain, general debility, or acute diarrhea, unless caused by trichinosis.

Stimulants are mainly vegetable compounds, including [1] anthraquinone derivatives such as cascara sagrada or senna, [2] phenolphthalein and other coal tar dyes, [3] ricinoleic acid liberated from castor oil, [4] hydragogue drastics like croton oil, [5] sulfur, and [6] calomel. The last 3 are no longer used therapeutically.

Irritants even in parenteral dosage induce peristalsis by local action within the bowel; systemic agents stimulate motility after absorption into the blood stream and mechanical cathartics increase bulk or alter consistency of the stool.

Most laxatives stimulate primarily the small intestine but empty the colon by reflex soon after ingestion. Others, such as cascara, affect the colon directly in about eight or ten hours.

The High Protein Diet fits any budget!

Getting enough high-quality protein in your patient's diet need not be expensive. It is often a matter of reinforcing meat protein with other protein foods.

Mix a protein bonus in the main dishes—

Your patient can add skim milk powder to meat loaf—then hide hard-cooked eggs inside for a bright-eyed surprise.

An omelet folded over penny-sliced frankfurters, ground cooked meat, or flaked fish is both tempting and economical.

And a green salad can be topped generously with shoestrings of meat and cheese.

Then add more to the rest of the meal—

Cottage cheese is happily versatile. It tops any salad; makes a pleasing spread—especially on dark breads; or thinned with milk and mixed with chili sauce, it's a zesty salad dressing.

An egg white or gelatin whipped into fruit juice makes a frothy flip.

And a fruit-cheese dessert is a gourmet's delight. Pears go with blue cheese, apples with Camembert, orange sections with cream or cottage cheese.

Of course, not all protein foods supply all the amino acids. But with sufficient variety, the diet is likely to supply all the essential ones, and at the same time assure adequate amounts of the vitamins necessary for proper protein metabolism.

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Beer—America's Beverage of Moderation

Protein 0.8 Gm., Calories 104/8 oz. glass*

If you'd like reprints for your patients, please write United States Brewers Foundation, 535 Fifth Avenue, New York 17, N.Y.

*Average of American beers

Cascara sagrada is probably the most satisfactory stimulant for prolonged use. Ordinary dosage is nontoxic and rarely causes griping or water evacuation. The USP dose of aromatic fluidextract is 2 cc., but adults may require up to 12 cc. The USP dose of plain extract is 0.3 gm., or 1 tablet.

Castor oil is employed for acute constipation and in preparation for radiographic studies because the bowel is almost completely emptied. The agent should be given to lessen toxicity when oil of *Chenopodium* is used as a vermifuge. The USP dose is 15 cc., but 2 to 4 times as much is the customary dosage for adults.

Phenolphthalein is included in many preparations with safety. Effects are cumulative, however, and secondary constipation may establish cathartic habit. Allergic dermatitis may result. Small doses can produce drastic effects, whereas large amounts may not produce any.

Colloid Laxatives

M. L. TAINTER, M.D., AND
O. H. BUCHANAN, M.D.
Rensselaer, N.Y.

BOWEL activity is increased by tragacanth, psyllium, and other colloid gums but digestion and assimilation are not impaired. Therapeutic value can be predicted from colloidal properties in vitro.

Recently, synthetic cellulose products were introduced. A useful aperient combines 0.4 gm. of methyl cellulose with 0.1 gm. of purified psyllium hemicellulose.

In treatment of 8 individuals, 6 compound tablets daily equaled the effectiveness of nine 0.5-gm. methyl cellulose tablets; stool weight and promptness of effect were used to evaluate results. Improvement was noted on the first day of combined medication, whereas plain tablets were initially constipating.

Evaluation of Aperients

JOHN C. SEED, M.D., AND
RAYMOND HARRIS, M.D.
Rensselaer, N.Y., and
Ann Lee Home, Watervliet, N.Y.

EFFECTIVENESS of laxatives can be easily compared from subjective, verbal reports of the patient. When this simple method is used, the subject and investigator must be unaware of which compound is taken at particular times, and order of administration should be random.

The plan was tested in 2 surveys. Drugs were enclosed in similar capsules, and recipients were interviewed daily by a nurse. Number and consistency of stools and any side effects were recorded.

On an equimolar basis, magnesium sulfate was more potent than milk of magnesia or magnesium citrate. By actual weight, however, milk of magnesia was more than twice as stimulating, but action was slower and less strenuous.

In the second experiment, caroid and bile salts with phenolphthalein tablets proved to be less effective than would be expected from the simple sum of the laxative ingredients. Inert contents were probably inhibitory.

IN COMBINATION DRUG THERAPY FOR

Advanced Hypertension

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RAUWILOID 1 mg. and VERILOID 3 mg. IN A SINGLE TABLET

for moderately severe to severe hypertension which does not respond adequately to Rauwiloid or other rauwolfia preparations alone. Makes Veriloid effective in better tolerated dosage.

Initial dosage, 1 tablet t.i.d., p.c. In bottles of 100, an average month's supply.

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RAUWILOID 1 mg. and HEXAMETHONIUM CHLORIDE DIHYDRATE 250 mg. IN A SINGLE TABLET

for otherwise intractable, rapidly advancing hypertension; provides ganglionic blockade in simpler, more easily managed form. Smoother drug absorption — fewer side actions — prompt relief of symptoms.

Initial dosage, 1/2 tablet, q.i.d., before meals and on retiring. In bottles of 100 slow-dissolving scored tablets.

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

Stimulant Versus Bulk Medication

LEO J. CASS, M.D., AND
WILLIEM S. FREDERIK, M.D.
Harvard University, Cambridge, Mass.

FOR management of chronically ill, aged, or institutionalized patients, stimulant laxatives have a slight advantage over bulky types. A blind comparison was carried out among severely constipated inmates of a chronic disease hospital. None were fully ambulatory. Tablets of lactose, methyl cellulose, or caroid and bile salts with phenolphthalein were compared.

Data were obtained from floor nurses and the patients. Number and consistency of stools, untoward reactions, number of enemas needed, and dosages were recorded.

Though either stimulant or bulk agent may be satisfactory, 4 tablets of the triple compound daily are more uniformly effective than 8 tablets of methyl cellulose. Action starts sooner, and undesirable reactions are less likely.

Aged and institutionalized patients need power rather than increased luminal mass. Irritant drugs are not given continuously but only as need arises. Since no laxative is entirely harmless, prolonged therapy should be directed by a physician.

Treatment of Chronic Constipation

FRANZ J. INGELFINGER, M.D.
Boston University

PATIENTS requiring treatment for chronic constipation may have an imaginary disease; an irritable, spastic colon; or blunted rectal sensibility. Emotional support, reassurance, and relief of tension are necessary in all instances, and psychotherapy is sometimes advisable.

A person with imaginary constipation seems healthy, moves the bowels without undue effort or discomfort, yet often resorts to laxatives and enemas. The patient may be dissatisfied with the appearance and number of stools or may attribute headache, fatigue, and other neurasthenic symptoms to improper elimination.

Correction may be difficult, as the mental disturbance is often severe. The patient must be convinced that movements are normal or would be if the bowel were not abused. Occasionally, if the original attitude is changed, anxiety is transferred to another system.

Spastic constipation is by far the most common type. Movements are usually hard and are expelled only with considerable effort. Stools are dehydrated and enter the rectum in small driblets that do not evoke the natural mechanism of evacuation. Aching distress about the sigmoid or cecum is a frequent symptom.

Therapy should relieve sigmoid spasm, soften the feces, and reestablish rectosigmoid motility.

Most people under 50 years old can learn regular bowel habits. The best time for evacuation is after breakfast. A deliberate, unhurried, consistent attempt should be made daily, whether or not urge is felt.

Training is assisted by agents to soften the feces. Liquid petrolatum

(Continued on page 144)

THE TECHNIQUE OF MANAGEMENT OF HYPERTENSION WITH ANSOLYSEN

Indications: Moderately severe, severe, or malignant hypertension. Enables effective control in 90% of patients.[1]

Aim of Therapy: To reduce gradually the standing systolic blood pressure to approximately 120 mm. Hg.[2]

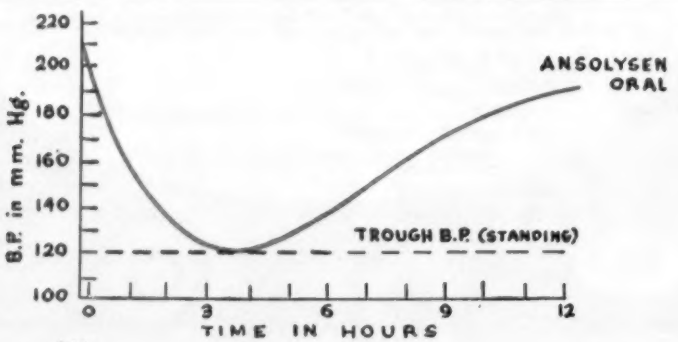
The Drug Used: ANSOLYSEN, a new, orally effective ganglionic blocking agent, which produces certain fall in blood pressure. Drug resistance and by-effects are minimal.

THE TECHNIQUE

The patient's posture influences response. Maximum response is produced when standing, less when sitting, least when recumbent. The physician must determine the dose of ANSOLYSEN required to reduce the patient's standing systolic pressure to normotensive levels for that patient at the point of maximum drug effect.

Dosage: The starting dose is 20 mg., taken orally every 8 hours. The morning dose may be taken before or after breakfast, but the patient should consistently follow the course elected. Each dose is increased by 20 mg. every second day until the patient experiences a little faintness or giddiness in the standing position (postural hypotension) at the time of maximum drug action.[3] The ideal dose is nearly always 20 mg. less than the dose that just succeeds in causing faintness in the standing posture.

Maintenance of Effective Dose Method No. 1. Control of dosage by home blood-pressure recordings.[2,4] Where several daily recordings of pressure can be made by the patient or a member of his family, the physician can easily adjust ANSOLYSEN dosage as necessary. Home pressures should be taken with the patient in the standing position and at the time of maximum drug effect. For more complete information on this method, see package circular or



other ANSOLYSEN literature.

Method No. 2. Control of dosage by symptoms.[2] Where taking of home blood pressures is not practical, control of dosage by symptoms of hypotension is more useful than the taking of occasional blood pressures. If it is uncertain whether an effective dose is being maintained, it should be increased by 20 mg. increments cautiously until mild faintness occurs in the standing posture. Thus, control of dosage is in terms of hypotensive symptoms such as faintness or lightheadedness and not in terms of by-effects such as dry mouth or blurred vision.

Adjunctive Therapy: The concomitant use of reserpine with ANSOLYSEN produces smoother blood pressure response, decreases the dose of ANSOLYSEN required,[2] and minimizes by-effects from parasympathetic blockade.[5]

Precautions: ANSOLYSEN affects sympathetic and parasympathetic nerve transmission. Improper technique may result in marked postural hypotension, constipation, dryness of the mouth, blurred vision, urinary retention (especially in males with enlarged prostates), and, rarely, obstipation or paralytic ileus.

It is mandatory to maintain normal bowel function. Pilocarpine nitrate, 2.5 to 5 mg., taken with each dose of ANSOLYSEN, usually controls constipation, blurred vision, and dryness of mouth.[2] If pilocarpine fails to control constipation, 15 to 30 mg. of Prostigmin®[2] may be taken upon arising; if necessary, a laxative such as Petrogalar® with Phenolphthalein may be taken at bedtime. In the presence of constipation, the dose of ANSOLYSEN should be reduced until normal bowel function returns; then the dose should be gradually restored to the optimal level.

1. Freis, E. D.: Personal communication
2. Sturgis, C. C.: Television Symposium; "The Management of Hypertension," American College of Physicians, Sept. 23, 1954
3. Smirk, F. H.: Lancet *1*:457 (March 7) 1953
4. Freis, E. D.: M. Ann. District of Columbia *23*:363 (July) 1954
5. Smirk, F. H., and others: Lancet *2*:159 (July 24) 1954

SUPPLIED: ANSOLYSEN Tablets—40 mg. and 100 mg. tablets, scored for division of dose, bottles of 100. Also Available: ANSOLYSEN Injection—10 mg. per cc., vials of 10 cc.

ANSOLYSEN*

Pentolinium Tartrate

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and a hydrophilic colloid are relatively innocuous, increase water content of stools, and are easily given in gradually reduced doses.

Oil is often preferable, since colloids may cause epigastric discomfort or form a gummy tenacious mass. Small doses of 15 to 30 cc. of petrolatum at bedtime seldom cause much leakage or carotene loss, though the oil may aggravate anal disorders. Emulsified preparations offer little advantage.

The patient is advised to eat well-rounded, nutritionally adequate meals. Extremes of blandness or roughage should be avoided. A glass or two of water when arising may stimulate the gastrocolic reflex, but drinking 6 to 8 extra glasses does not produce an appreciable change in stool weight or consistency.

Antispasmodics are of limited usefulness for constipation. Ergotamine and Prostigmin may be combined in the morning to induce colonic propulsion, and, later in the day, anticholinergics may alleviate distress and permit sigmoid filling from above.

When rectal insensibility causes chronic constipation, the rectum is often filled with a soft mass that produces no reflex urge. The chief symptoms are vague abdominal sensations of bloating and heaviness. A few persons with rectal insensibility are psychotic, some are young or middle-aged adults who are otherwise healthy, and many are aged or invalids.

Bowel training may reestablish rectal sensitivity of healthy persons who are not old. Prostigmin and ergotamine stimulation and increased dietary bulk may be helpful. Constipation of old or chronically ill persons is treated with irritant laxatives.

The Concept of Accident Proneness

M. S. SCHULZINGER, M.D., CINCINNATI, believes that, contrary to currently accepted theories, accident-prone individuals furnish only a small percentage of all accidents. The 3 to 5% of individuals who are injured year after year account for only 0.5% of all accidents.

A study of 35,000 consecutive accident cases over a twenty-year period reveals that the tendency to accidents is a phenomenon that passes with age, decreasing steadily after reaching a peak at 21 years of age. Most nonindustrial accidents occur in persons under 35. Men are twice as liable to sustain accidents as women. Nearly three-fourths of all accidents are relatively infrequent solitary experiences.

Unequal distribution of accidents is apparently a result, in part, of transient or prolonged states of physical, psychologic, or physiologic stress in a constantly shifting group of individuals.

Accident proneness. Indust. Med. 23:151-152, 1954.

Thoroughbreds are born, not made –

FROM THE ENGRAVING "IRISH BIRDCATCHER" BY J. HARRIS. LONDON. PUBLISHED 1853 BY DAILY BROTHERS.

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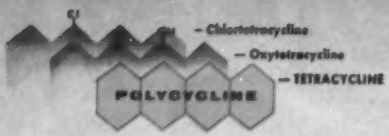

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CAPSULES
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– 100 mg., bottles of 25 and 100.
– 250 mg., bottles of 16 and 100.

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TRADE MARK (TETRACYCLINE *Bristol*)

– the ONLY oral suspension of tetracycline that is **ready-to-use.** Requires no reconstitution, no addition of diluent, **no refrigeration** – stable at room temperature for 18 months. Has appealing "crushed-fruit" flavor. Supplied in bottles of 30 cc., in concentration of 250 mg. per 5 cc.

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effective in broad range
against gram-positive and gram-negative organisms.

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(lower incidence of side reactions) than older broad-spectrum antibiotics.

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Dosage: average adult, 1 gram daily, divided doses; children in proportion to body weight.

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Medical Forum

Discussion of articles published in MODERN MEDICINE *is always welcome. Address all communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Toxemia and Vascular Damage*

QUESTION: How often does toxemia of pregnancy cause permanent damage?

Comment invited from

ERNEST W. PAGE, M.D.
WILLIAM J. DIECKMANN, M.D.

► TO THE EDITORS: Can preeclampsia-eclampsia cause residual vascular damage and hypertension? Yes. How often does it do so? No one knows, but probably less frequently than most obstetricians believed ten years ago.

Why, despite countless follow-up studies published in the past three decades, do we not know how often preeclampsia-eclampsia causes residual damage? Because no one can define the original disease in unequivocal terms. What is pure preeclampsia, uncomplicated by any preexisting vascular or renal disease? One internist defines it solely in terms of the eyeground appearance. One authority observes that preeclampsia never lasts more than two weeks. Another differentiates preclampsia from essential arteriolar hypertension on the basis of the renal clearance of urates and inulin; still another on the manner in which a given sodium chloride load is handled; and so on, ad infinitum.

The first requisite in answering the question, "Can A give rise to B?", is to define A with accuracy. The mere fact that the incidence of preeclampsia, expressed as a percentage of all pregnant women with hypertensive disorders, varies so widely from one clinic to another is evidence that few authorities agree on a precise definition. Until we have some specific pathognomonic test for preeclampsia, we will not know just how often the disease gives rise to residual vascular damage.

In the face of such uncertainty, why do I believe that preeclampsia or eclampsia—the same disease—*can* lead to residual hypertension? Because the following reasons, each circumstantial, collectively appear to make up a strong case:

• On numerous occasions, I have seen the development of acute hypertension and massive albuminuria in the third trimester in young women known to have been normotensive for years before the onset of this syndrome. In some instances, these women, still in their twenties, are found on subsequent examinations to have permanent and significant blood pressure elevations.

(Continued on page 148)

*MODERN MEDICINE, July 1, 1954, p. 103.

OLD GOLD FILTER KINGS

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Here's the first famous name brand to give you a filter. And when you see the Old Gold name on the pack, you know you're getting a quality tobacco product.

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On sale now with the other members of the Old Gold Family, new Old Gold Filter Kings sell at a popular filter price. Whichever kind of cigarette you prefer, make it one of the family . . . America's First Family of Cigarettes.

Doctors: Today Old Gold Filter Kings are sold in most U.S. cities, and our distribution is expanding every day. If your city does not yet have Filter Kings, simply write to P. Lorillard Company, 119 W. 40th St., New York 18, N. Y., and special arrangements will be made to make them available to you.

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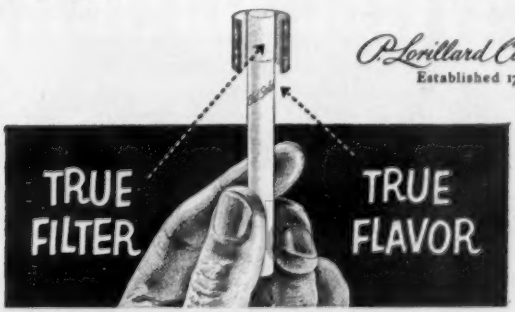

***True filter—true flavor*—The effective filter that lets real flavor through. Pure white . . . never too loose . . . never too tight—this easy draw filter makes every puff taste like a *treat*.**

• Regardless of how any clinic defines preeclampsia, the frequency with which these women develop a recurring hypertension in subsequent pregnancies is definitely increased.

• In 1938, I studied the kidneys of 7 women who had had preeclampsia many years before death, and all had significant degrees of thickening of the glomerular capillary wall, a lesion known to occur in women who die of eclampsia. In a control series, such lesions were rare and not so marked.

• If hypertension is induced in rats either by interference with the arterial supply to one kidney or by the administration of sodium chloride and DCA, removing the cause of the hypertension after one month will result in the return of the blood pressure to normal in only half or less of the animals. Thus two types of hypertension, temporarily induced, can lead to permanent vascular changes. This is in keeping with the clinical impression that the longer preeclampsia is allowed to persist, the greater is the frequency of residual damage.

• Even when the diagnosis of preeclampsia is rigidly restricted to those who have only a sheen to the ocular fundi and no other evidences of retinal damage, Dr. Frank A. Finnerty, Jr., has found that some have persistent organic vascular changes in the retinas long after delivery.

In summary, we believe that preeclampsia-eclampsia can cause residual vascular damage for a variety of reasons; but until someone can define the disease with such preciseness as to exclude the coexistence of some other hypertensive disorder, the frequency with which such residual damage occurs cannot be determined.

ERNEST W. PAGE, M.D.
Berkeley, Calif.

► TO THE EDITORS: Patients with toxemia of pregnancy usually have preeclampsia-eclampsia or hypertensive disease. The latter usually manifests itself before the twenty-fourth week but occasionally not until the last trimester. If the doctor has seen the patient periodically during pregnancy, he is usually able to decide what type of toxemia she has.

Of our toxemic patients, 45% had preeclampsia, 2.2% had eclampsia, 52% had hypertensive disease, and 1.1% had acute or chronic glomerulonephritis. Using the subsequent pregnancy as a test, our diagnoses were incorrect in 13% of the toxemic patients.

Our studies indicate that if the patient has preeclampsia or eclampsia, permanent vascular or renal damage is rare. If she has hypertensive or renal disease, evidence will be found subsequent to the pregnancy.

Kidney biopsies show a glomerular lesion in true preeclampsia which is reversible. In other patients with what appeared to be preeclampsia, old lesions of both glomeruli and tubules have been found. Obviously, these patients, after delivery or in subsequent pregnancies, would show evidence of permanent vascular-renal damage.

These lesions would also explain the so-called preeclampsia superimposed upon chronic hypertensive disease.

Our studies also indicate that preeclampsia is an acute disease but with a long prodromal period. However, as soon as the condition has become acute, one cannot observe the patient for a period of weeks without danger of maternal or fetal death. If one is successful in observing such a patient for three or more weeks without death, our evidence indicates that the patient has some form of vascular-renal disease.

WILLIAM J. DIECKMANN, M.D.
Chicago

Procaine for Menière's Disease*

QUESTION: How often is stress a factor in the production of Menière's disease?

Comment invited from

JOHN R. LINDSAY, M.D.
KENNETH M. DAY, M.D.
MAURICE SALTZMAN, M.D.
ADOLF ZECKEL, M.D.
FRANK R. FORD, M.D.

► TO THE EDITORS: On the basis of clinical experience only, I am impressed that in some patients conditions of unusual stress or nervous fatigue appear to have a tendency to precipitate an attack of Menière's disease. That is, an increase in auditory symptoms in some cases will culminate in an attack of vertigo. However, this is only a clinical observation.

The idea of Dr. Edmund P. Fowler, Jr., that procaine or nicotinic acid may increase circulation in the blood vessels in the inner ear is something which has not yet been proved. There have been certain difficulties in determining the effects of such drugs on the circulatory flow in intracranial vessels. Recently, however, we have developed in our laboratory a suitable experimental setup for observation and moving picture recording of the blood flow in the inner ear. I would prefer not to make comments on the effect of particular drugs on the circulation until we have been able to carry out more experiments.

The other part of Dr. Fowler's thesis that "sludging" of the blood occurs in the vessels of the inner ear and gives rise to pathologic changes and functional disturbances is far from being established and, in my opinion, most questionable.

The unfortunate fact is that no medical therapy is known to us today which has been universally reliable in the treatment of Menière's disease. One is often left with the impression that the meticulous care exercised by the physician in the management of the patient may be as important as the drug used. This, of course, suggests a psychologic influence.

I would also disagree that the coagulation surgery of Day is the best treatment. In the hands of inexperienced operators there have been accidents to the facial nerve due to the transmitted effect of the coagulating current.

The objective can be obtained

(Continued on page 154)

MODERN MEDICINE, June 15, 1954, p. 117.

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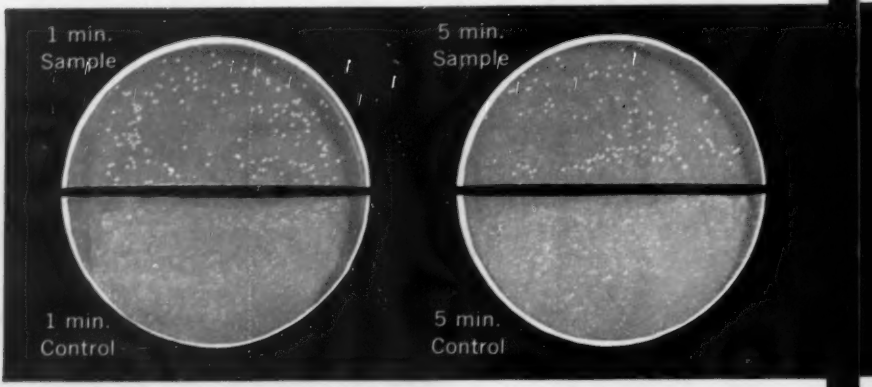
Photographic evidence of Drilitol's antibacterial action against a combined culture of



EXPERIMENT Drilitol's antibacterial agents, gramicidin and polymyxin, were dissolved in 10 cc. diluting fluid. 2 cc. of this solution, which was a much lower concentration of the antibiotics than is provided by 'Drilitol', were combined with 8 cc. of a combined Hemophilus influenzae-Staphylococcus aureus broth culture.

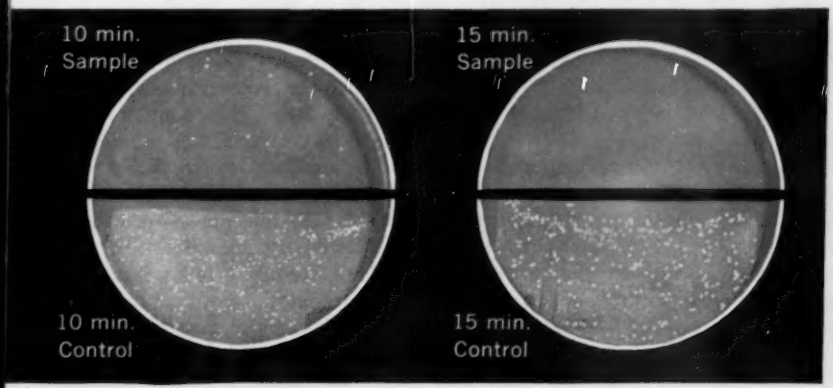
control 2 cc. of the diluting fluid alone were combined with 8 cc. of the Hemophilus influenzae-Staphylococcus broth culture.

method Samples were taken from each after 1, 5, 10 and 15 minutes respectively, and streaked on chocolate agar. Photographs were taken after the plates were incubated overnight at 37° C.

RESULTS Hemophilus influenzae—total bacteriostasis in less than 1 minute.

Staphylococcus aureus—marked bacteriostasis within 15 minutes.

GRAM-POSITIVE STAPHYLOCOCCI AND GRAM-NEGATIVE HEMOPHILUS INFLUENZAE



'Drilitol'—the most widely prescribed antibacterial intranasal preparation—offers the following advantages:

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†T.M. Reg. U.S. Pat. Off. 'Spraypak' Trademark

equally well by instrumental destruction of the structures in the vestibule without taking even the slight risk of damage to the facial nerve from the coagulating current.

Basically my ideas are somewhat in agreement with Dr. Fowler's in that stress appears to be an important factor. This probably involves the autonomic nervous control of the vascular system in the inner ear. However, up to the present time, one must consider the various means of medical therapy as having given indefinite information.

JOHN R. LINDSAY, M.D.
Chicago

► TO THE EDITORS: I agree that stress is a major factor in precipitating the attacks of vertigo in Menière's disease. It is generally accepted that Menière's disease is caused by an autonomic dysfunction affecting the labyrinth as a shock organ. The resulting endolymphatic distention causes a distortion of response to stimulation of the sensory organs involved—those of hearing and balance.

There is no specific form of curative therapy for this condition. Accepted forms of treatment include dehydration, peripheral vasodilating or anticholinergic drugs, sedatives, and Dramamine. In my own experience, so-called hypodesensitization with intramuscular injections of histamine has been effective in controlling the attacks of vertigo in over one-half of cases; 0.1 to 0.5 cc. of 1:100,000 dilution of histamine base once or twice a week is the average dosage. An overdose will precipitate an attack and it usually takes several weeks to build up the strength of the solution to a level just below that which will cause an attack.

If the stress factor cannot be relieved, all other treatment is ineffective. In contrast, other therapy often is unnecessary if the stress factor can be eliminated. Domestic difficulties, chronic illness, economic problems, or invalidism in the immediate family often causes an insurmountable state of stress.

For intractable cases with unilateral involvement, surgery may be indicated. Labyrinthectomy via the mastoid approach with an opening made in the horizontal semicircular canal is the simplest and most effective operation at present. I hesitate to recommend use of the electrocoagulating needle because of mishaps which may occur as a result of faulty technic. Removal of a portion of the membranous labyrinth by means of tweezers, dental broach, or fine curet will effectively destroy this organ.

KENNETH M. DAY, M.D.
Pittsburgh

► TO THE EDITORS: In the true form of Menière's disease, there is a vascular lesion of the labyrinth. Procaine, by its known pharmacologic properties, should exert some influence on the labyrinthine circulation. This fact was proved by Fowler, who observed that, in some cases, tinnitus was diminished or ablated while the infusion of procaine was in progress, whereas the tinnitus promptly recurred when

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the injection was stopped. It is known, however, that procaine causes dilation of the cerebral vessels and constriction of the vessels in the pia. Depending upon which effect predominates, the symptomatology may be modified.

The main effect of procaine intravenously is an increase in the speed of blood flow. If the vascular lesion of the labyrinth consists of a blockage of an arteriole by sludged blood, it is conceivable that an onrush of a blood current may break up the sludge. However, in hydrops of the cochlear duct, no clear reason for a favorable therapeutic effect from procaine seems apparent.

To date, the exact composition of the endolymph is unknown and the manner of its circulation is not definitely established. We had under our observation several cases of "ear stroke." It occurred in individuals prone to thrombotic phenomena—coronary or cerebral. The outstanding finding was sudden unilateral deafness. Vertiginous attacks were conspicuously absent and tinnitus was present only occasionally. These cases should be labeled "ear stroke" rather than Menière's disease.

In the psychosomatic Menière syndrome, there are, usually, other manifestations of anxiety neurosis, such as tingling in the hands and feet and the feeling of "going to pieces." The dizziness and tinnitus may be superimposed on a longstanding organic deafness. The efficacy of procaine in anxiety neuroses has not been proved.

MAURICE SALTZMAN, M.D.
Philadelphia

► TO THE EDITORS: In about 50% of approximately 100 patients with idiopathic Menière's disease, I observed that the onset of vertiginous attacks or of extreme tinnitus coincided in time with episodes of psychologic stress. These attacks occurred within hours to a few days of death of relatives, bankruptcy procedures, serious difficulties with associates in work—in general, dramatic events evoking panic and threatening security.

In another 30% of the cases a chronic psychoneurotic condition existed, frequently marked by sadomasochistic conflicts and leading to unsatisfactory sexual situations.

It seems to me that in about 80% of the cases observed, emotional stress in acute or chronic forms presented itself. However, even in the first mentioned patients, psychopathology had existed before the dramatic events.

In 2 cases Dr. Fowler and I succeeded in experimentally inducing emotional stress. This procedure proved to be difficult and potentially objectionable. We observed in both cases mild attacks of vertigo and tinnitus following the stressful session. In 1 of these 2 patients, sludging of the blood in the conjunctival vessels appeared simultaneously with the attack. In the other case crying made this examination impossible.

A considerable number of patients benefited from psychotherapy. In those sessions, too, we noticed how abortive attacks were frequently related to emotional upsets, conscious as well as unconscious factors. Excellent results in some cases

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from psychotherapy confirmed our opinion that psychogenic influences can set off the syndrome. We came to the conclusion that a considerable amount of evidence was on hand that emotional stress on an adrenergic basis can result in blood sludging, leading to anoxemia in the labyrinth, causing labyrinthine hydrops, reversible in the beginning but leading to mild and full-blown attacks of Menière's syndrome.

ADOLF ZECKEL, M.D.
New York City

► TO THE EDITORS: Some years ago I had the opportunity of seeing a large number of patients with Menière's disease who came to the Johns Hopkins Hospital to see the late Dr. Walter Dandy. I saw nothing to make me think that stress played any role in the production of this disease. I suspect that this idea is a result of mistaking another condition for Menière's disease.

Emotional stress and strain, fatigue, and prolonged nervous tension are very important factors in the production of the common head-movement vertigo which I described not long ago (*Bull. Johns Hopkins Hosp.* 87:299-304, 1950) and which is apparently not generally recognized. In this condition the vertigo is most apt to occur when the patient awakens in the morning. The attempt to get out of bed or even turning the head on the pillow will induce the symptoms. There may be violent vertigo with apparent rotation of the room and vomiting or, in milder reactions, merely a sense of giddiness. After half an hour, the patient will often be able to get up and go about his duties although it may be necessary to avoid sudden movements of the head during the rest of the day. In some instances the patient may be forced to lie still in bed for several days.

It is important to point out that deafness and tinnitus are not found in this condition and that prompt relief is secured by lying still. The last statement is helpful in distinguishing Menière's disease in which the vertigo persists until it comes to an end regardless of what the patient does. These reactions are variable and inconstant. A certain movement may cause vertigo but when repeated an hour later may be without effect. Some patients state that turning the head to one side may cause vertigo but turning to the other side does not. The reactions to rotation in the Bárány chair and to irrigation are variable. Usually they are brisk and sometimes greatly increased. Head-movement vertigo must be due to excessive irritability of the semicircular canals, that is, to an increase of the vestibular reflexes. This view is supported by the fact that in acute labyrinthitis and various states of labyrinthine irritation the same reactions may occur.

Head-movement vertigo is seen most frequently in elderly subjects. In some individuals who carry heavy responsibilities despite their age, rest will give relief; hence, stress seems to be important. In others, the symptoms are persistent and may be associated with the pro-

(Continued on page 162)

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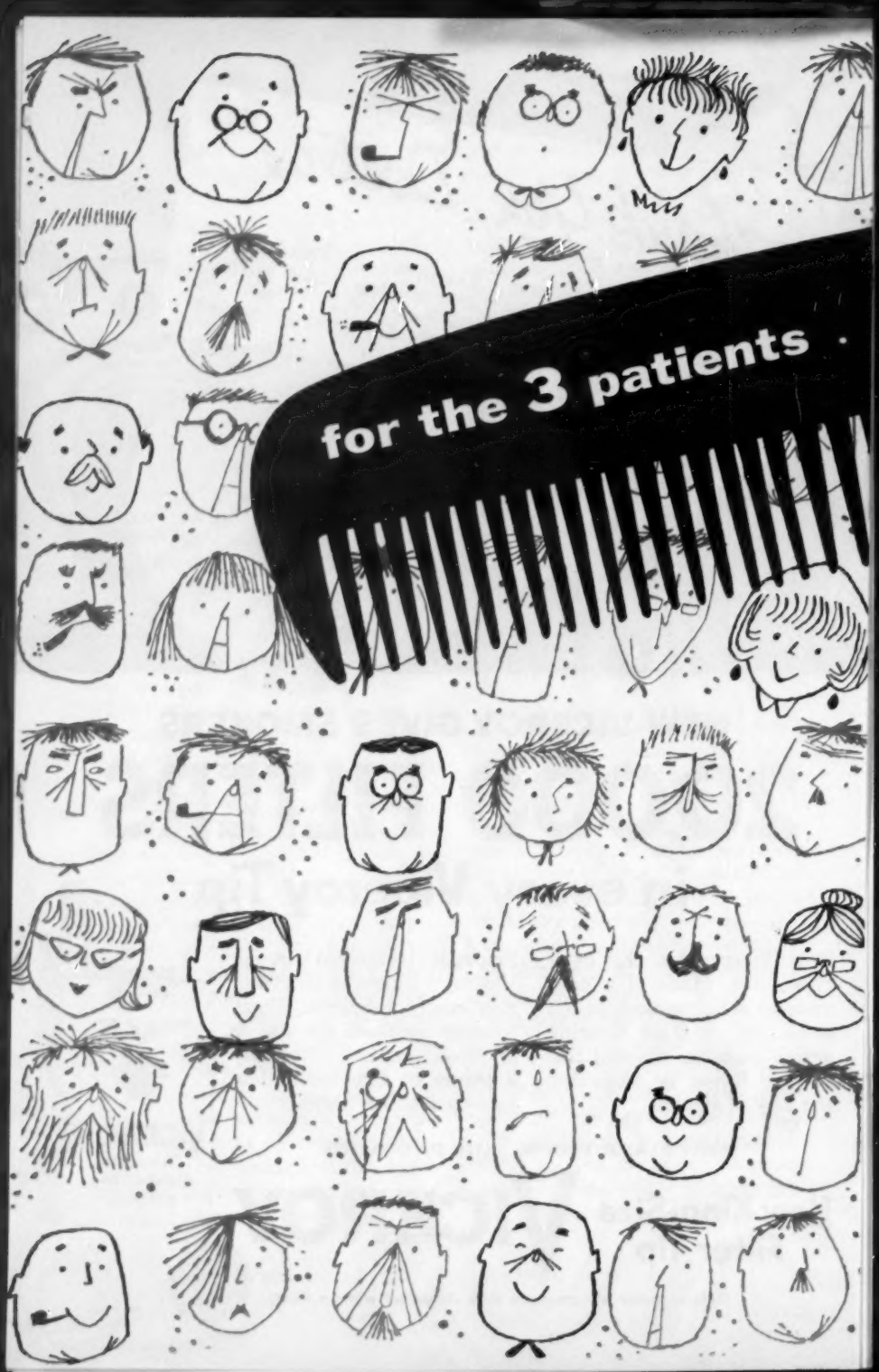
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1. Slepyan, A. H. (1952), Arch. Dermat. & Syph., 65:228, February.
2. Slinger, W. N., and Hubbard, D. M. (1951), *ibid.*, 64:41, July.
3. Sauer, G. C. (1952), J. Missouri M. A., 49:911, November.

gressive loss of equilibrium which is so characteristic of old age. In such cases one must be dealing with senile arteriosclerotic processes in the vestibular mechanism.

Head-movement vertigo is frequently observed in subjects of middle age and occasionally in young people. Here stress and strain and nervous tension seem to be the major factors. Vertigo may occur every morning for a week or more and then disappear to recur again at some later date. Often one may correlate these episodes with the patient's routine, as in the case of a patient of mine whose business was seasonal and who had attacks every spring when the pressure of his work was greatest. In such cases a good rest or vacation will always give relief. I usually prescribe a strong sedative every night for two weeks. Psychiatric help may be required in cases in which the patient's personality and not the situation is responsible.

FRANK R. FORD, M.D.

Baltimore

Kehr Incision for Gallbladder Surgery*

QUESTION: Does the Kehr incision provide the best exposure for gallbladder surgery?

Comment invited from

W. KENNETH JENNINGS, M.D.

► TO THE EDITORS: Dr. Emile Holman has called attention to the advantages of the Kehr approach to the biliary tract. Recently, I was privileged to observe the French surgeons, Senecht and Roux, use the incision in operations on the gallbladder and was impressed with the excellent exposure which it provided. It consists essentially of a vertical midline component extending from the xiphoid to approximately the midpoint between the xiphoid and umbilicus and then swinging laterally across the rectus muscle between the ninth and tenth dorsal nerves. By avoiding injury to these nerves, the risk of segmental paralysis of the medial portion of the rectus is obviated.

We have now employed the Kehr incision for several cholecystectomies and common duct explorations and are convinced that the technic affords excellent exposure of the gallbladder and its ducts. It is particularly helpful in the patient with the high, narrow costal arch. In such individuals the midline or paramedian incision has the disadvantage of a single fascial layer closure, while any type of subcostal or oblique incision will necessitate sacrifice of the ninth and possibly the tenth dorsal nerves if the rectus muscle is transsected.

For the patient with the wide arch, the Kocher or modified transverse incision will provide all the advantages of the Kehr incision without the disadvantages of the single fascial layer closure of the vertical component. Neither of these incisions should be used when removal of the appendix is planned, although we have found it possible to perform an appendectomy through the Kehr incision in approximately 75% of cases.

*MODERN MEDICINE, Dec. 15, 1953, p. 120.

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We feel that the incision offers an ideal surgical approach to the biliary tract and duodenum in patients with a narrow costal arch in whom an appendectomy is not considered important. For the latter patient we prefer a midline incision to about where the Kehr wound swings laterally, following this same curve to the junction of the proximal and middle third of the anterior rectus sheath, then dropping vertically to a point just below the umbilicus.

It is our conviction that a high vertical component which begins at the xiphoid is important in all cholecystectomy incisions, with the exception of those in patients with a wide costal arch.

W. KENNETH JENNINGS, M.D.
Santa Barbara, Calif.

Prolapse of the Gastric Mucosa*

QUESTION: How frequently does prolapsed gastric mucosa occur, and how often does the condition produce significant symptoms?

Comment invited from

ARNOLD STANTON, M.D.
MAURICE FELDMAN, M.D.
G. M. TICE, M.D.
D. B. CORCORAN, M.D.
EMANUEL M. RAPPAPORT, M.D.
THOMAS G. ORR, M.D.

► TO THE EDITORS: Prolapse of the gastric mucosa through the pylorus is probably a normal finding, the incidence being about 15%. In most cases it is a radiologic and anatomic diagnosis and is clinically asymptomatic.

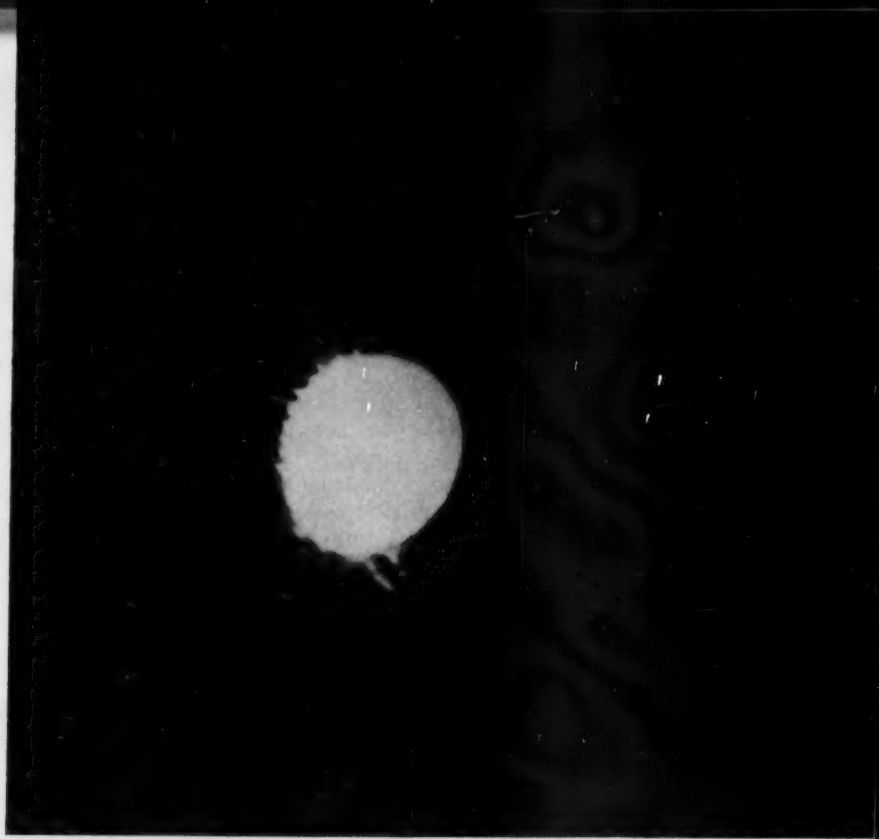
When ulcer, hiatus hernia, or cholelithiasis occur concomitantly, these conditions are more likely to be the cause of symptoms than the mucosal prolapse. When the latter occurs alone, such symptoms as vague epigastric pain, heartburn, and vomiting may merely be incidental findings and not directly due to the prolapsed gastric mucosa, since it often occurs without symptoms. Other causes of organic and functional nature must be excluded, such as a hidden duodenal ulcer, faulty eating habits, or nervous strain.

It has often been reported that vague dyspeptic symptoms thought to be caused by prolapsed gastric mucosa have not been relieved by operation. Surgery for dyspepsia should be considered only after the complete failure of medical treatment. However, as Drs. Russel H. Patterson and Sydney Weintraub maintain, a large prolapse may become incarcerated and may cause pyloric obstruction or bleeding. In the absence of other causes, surgery for the prolapsed mucosa is definitely indicated.

ARNOLD STANTON, M.D.
Richmond Hill, N.Y.

► TO THE EDITORS: Prolapse of the gastric mucosa is a clinical-roentgenologic entity proved by surgical and pathologic findings. Many cases have been surgically explored with complete relief of symptoms. Recently we have found a case at autopsy in which the gastric mucosa was prolapsed into the second portion of the duodenum.

*MODERN MEDICINE, July 1, 1954, p. 97.



ELECTRON PHOTOMICROGRAPH

Staphylococcus aureus 35,000 X

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The subject of prolapse of the gastric mucosa is still controversial among roentgenologists, many of whom have been reluctant to report the findings of prolapse of the gastric mucosa unless very marked.

The incidence is about 10%, which approximates that of duodenal ulcer. The condition is often associated with the latter. In a recent report we found that the incidence of duodenal ulcer was 31.8% in 66 gastrointestinal roentgen examinations in patients presenting digestive symptoms.

Just how often the condition produces symptoms has not as yet been fully determined. Suffice it to say that prolapse of the gastric mucosa into the duodenum produces some degree of symptomatology in a large percentage of cases. Although these symptoms are intermittent, they are not pathognomonic. The symptomatology often simulates an atypical duodenal ulcer syndrome.

MAURICE FELDMAN, M.D.
Baltimore

► TO THE EDITORS: I think that the herniation of gastric mucosa through the pyloric ring into the duodenal bulb is a very definite entity, as has been proved in our institution by surgical demonstration. I think that the process may even be a factor in causing obstruction.

As in the case of many patho-

(Continued on page 170)

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logic processes that have not been diagnosed as entities for very long, the condition may be overdiagnosed by an enthusiastic radiologist. One must be careful that the suggestion of prolapsed mucosa does not mask a diagnosis of ulcer or some other serious pathology that may be a factor in bleeding.

I doubt if the symptomatology of prolapsed mucosa is sufficiently characteristic for the diagnosis to be made clinically.

G. M. TICE, M.D.
Kansas City, Kan.

► TO THE EDITORS: The incidence of prolapsing gastric mucosa in the general population is difficult to estimate. Since the diagnosis can be made with certainty only by means of roentgen examination, we must turn to series of these examinations for our answer. Moreover, the condition will be detected more frequently by roentgenologists familiar with and interested in the condition. Even among those who have made special studies of prolapsed gastric mucosa, however, the findings on incidence of the disease vary widely.

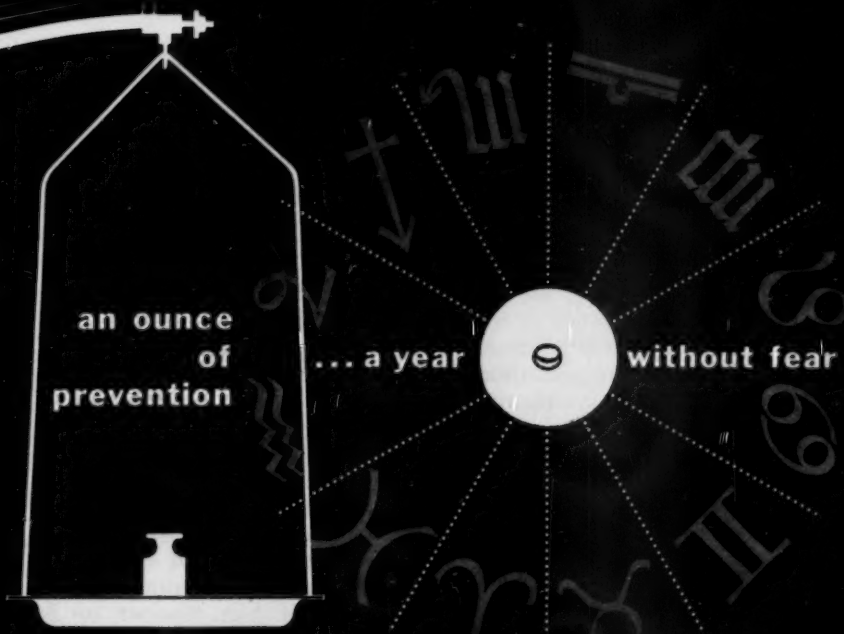
Reese found 4 cases in 300 examinations, an incidence of 0.13%, at the Reese-Stealy Clinic; and 2 cases in 2,550 examinations, an incidence of 0.08%, at the San Diego County Hospital. Scott reported 23 cases in 297 examinations, an incidence of 7.7%. Thus in these few series the incidence varies from .13 to 7.7%.

These examinations were presumably done on patients who had symptoms of upper gastrointestinal origin. It would be interesting to find the incidence of prolapsed gastric mucosa in some of the large surveys which have been done on patients who do not have symptoms. This would also give us an idea of how often this condition may exist without producing symptoms. I am sure we have all seen this lesion in patients without symptoms referable to this area.

I believe that prolapsed gastric mucosa occurs more often than most of us think and, while in many cases it does not produce significant symptoms, it may be a source of serious difficulty and should be looked for in every patient with gastrointestinal complaints which cannot be easily explained by some other pathology.

D. B. CORCORAN, M.D.
Suffolk, Va.

► TO THE EDITORS: Although prolapse of gastric mucosa of varying degrees may be demonstrated in 15% of patients over 50 years of age, it rarely constitutes a primary cause of symptoms. In about 75% of cases, only a small portion of mucosa is involved, frequently a single fold, and the phenomenon is so transient that it cannot be consistently demonstrated on repeated studies. It occurs [1] in healthy patients, [2] in conjunction with all the common diseases of the gastrointestinal tract, and [3] in individuals with obviously functional dyspepsia. I do not believe that this fleeting variety merits consideration as a clinical entity even in the pres-



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1. reduce the number of attacks (in 8 out of 10 patients[2,3]); **2.** reduce the severity of attacks not prevented.

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1. Russek, H. I., et al.: J.A.M.A. *153*:207 (Sept. 19) 1953. 2. Winsor, T., and Humphreys, P.: Angiology *3*:1 (Feb.) 1952. 3. Plotz, M.: New York State J. Med. *52*:2012 (Aug. 15) 1952.

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ence of otherwise unexplained hemorrhage or chronic digestive symptoms.

In about 25% of cases, sufficient mucosa prolapses during antral peristalsis to produce a defect involving the basal third or more of the duodenal bulb. More important than its extent is the fact that it is demonstrable at repeated examinations, even during periods of symptomatic remission. Its chronicity is attested to by the patulous pylorus. The roentgen appearance is too spectacular to dismiss lightly, yet in rare instances the patient will disclaim any past dyspepsia. Peptic ulcer, hiatus hernia, or other well-defined pathologic entities are present in at least half of such cases, yet their clinical patterns are not appreciably modified by the mucosal prolapse.

Thus the problem of evaluating the role of prolapse arises in only the small group of patients with recurrent digestive complaints for which no cause other than chronic transpyloric mucosal prolapse is found. Since this includes individuals whose complaints are primarily functional and those with antral gastritis, this frequently difficult differentiation should be made by the gastroenterologist rather than by the radiologist or surgeon. It is noteworthy that, despite numerous reports that surgery was required as a result of pyloric obstruction or bleeding from the traumatized mucosa, roentgen confirmation of the former and pathologic proof of the latter have been almost uniformly lacking.

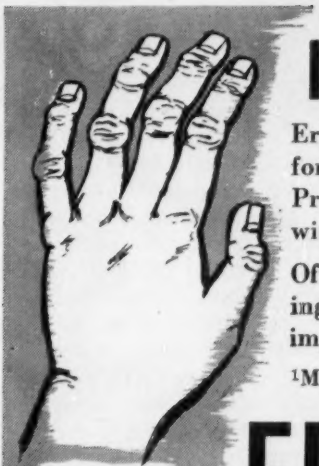
Obviously surgery is not indicated for functional digestive complaints regardless of the extent of prolapse. Attempts to treat prolapsing hypertrophic gastritis by excision of the mucosa and pyloroplasty fail to deal with the basic pathology which is rarely limited to the immediate prepyloric mucosa. If surgery is required for antral gastritis, a subtotal resection is the operation of choice whether or not prolapse of the musoca is present.

To date, I have not encountered a single case for which I have recommended surgery because of prolapsed gastric mucosa. My experience with the end results of surgery performed primarily for prolapse has been limited to 5 cases. Symptoms recurred in 3, hemorrhage in 1, and a second operation in the fifth patient disclosed carcinoma of the cardia.

EMANUEL M. RAPPAPORT, M.D.
Jamaica, N.Y.

► TO THE EDITORS: It is now generally believed that prolapse of gastric mucosa into the duodenum is a definite clinical entity. It has been too frequently observed in the roentgenogram and at the operating table, uncomplicated by any other lesion, to doubt its identity. Prolapse of gastric mucosa through the pylorus is analogous to prolapse of rectal mucosa through the anus.

It is probable that the incidence of prolapsed gastric mucosa does not exceed 1% in the routine roentgenograms seen in the average general hospital, although the incidence has been recorded in the literature as varying from 0.86 to 14%. It is



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[1]Magnuson, P. B. et al: J. Mich. State Med. Soc. 46:71

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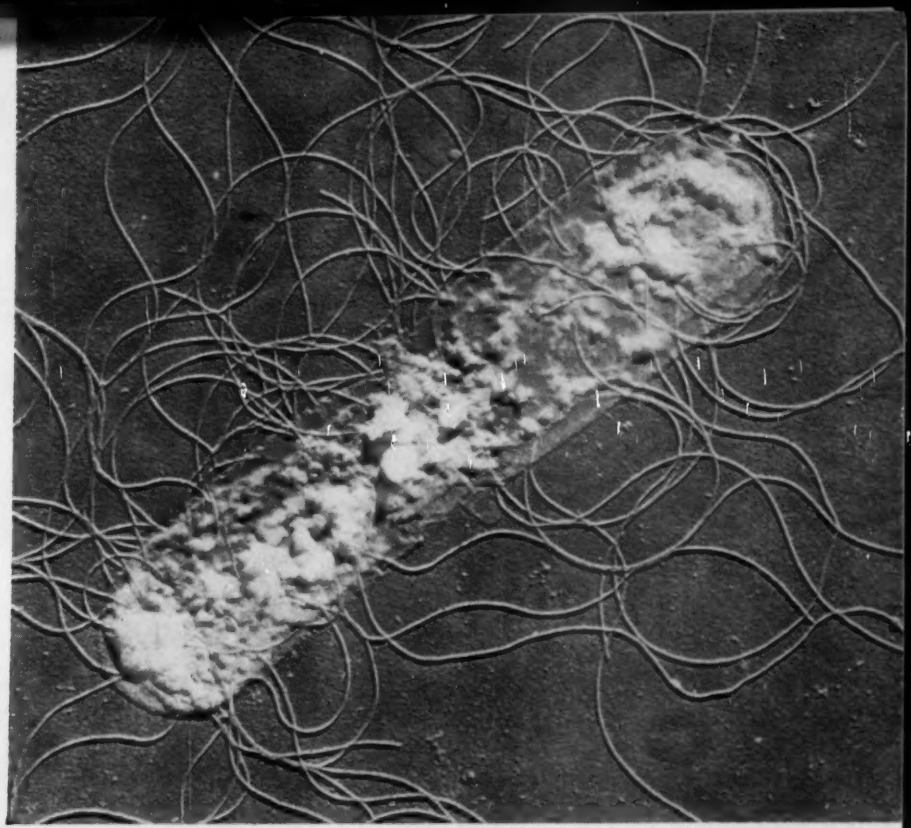
now evident that prolapsed gastric mucosa exists in varying degrees without symptoms. It is often found associated with other unrelated gastric diseases.

No symptoms are diagnostic. The diagnosis always is made with the fluoroscope or roentgenogram. The condition may produce epigastric discomfort, a burning sensation in the stomach, a suggestion of pylorospasm or pyloric obstruction, or, rarely, a palpable mass. Bleeding may be slight or profuse. If there is a palpable mass, a malignancy may be suspected. In one of our patients a diagnosis of carcinoma of the pylorus was made. Operation was advised and refused. The gastric symptoms persisted, but the roentgenographic findings of prolapse of gastric mucosa were unchanged after five years.

The treatment advised is usually conservative. When symptoms persist after adequate medical therapy and cannot, after careful study, be attributed to some other disease, and when bleeding is persistent or excessive, operation is indicated.

Three types of surgical treatment have been suggested: [1] pyloroplasty; [2] excision of the redundant prolapsed mucosa; and [3] partial gastrectomy. Operation should not be done unless the indications are very definite; partial gastrectomy is the operation of choice.

THOMAS G. ORR, M.D.
Kansas City, Kan.



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Case MM-277

THE CLUE

VISITING M.D: Today, let's turn things around a bit. I'll tell *you* about a patient I saw last week in my office—you be the consultant.

ATTENDING M.D: Fine! What's the story?

VISITING M.D: The patient is a 45-year-old business executive who has been in to see me for a general physical examination once a year for five years. During the last visit, two symptoms were uncovered. First, this spring when the golfing season opened he noted that, toward the end of each nine holes, his hips and buttocks would feel very tired. Second, he has had trouble lately with his erections.

PART II

ATTENDING M.D: Did the patient volunteer either symptom?

VISITING M.D: No. When he first came in, he said he was doing fine. Appetite and digestion good, weight steady, no shortness of breath, plenty of pep and ambition.

ATTENDING M.D: Hmm. I frequently find it difficult to evaluate symptoms uncovered by direct questioning, and the two you have told me about certainly seem unrelated.

VISITING M.D: Well, I'm not promising you they will lead to anything, but that's your problem. Are these symptoms worth following up and, if so, how?

ATTENDING M.D: I assume there is no additional history.

VISITING M.D: That's right, but I can fill in some negative data that may help. The tiredness in the hips and buttocks is quite localized—that is, it's not just a part of generalized exhaustion. He has noticed the fatigue only when playing golf, but that's his sole real exercise. There is no dyspnea; no claudication in the calves; no backache; no pain with cough-

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ing, stooping, or sneezing; and no nocturnal aching or cramping.

ATTENDING M.D: Enlarge on the sexual difficulty.

VISITING M.D: There's little to add there. Libido is normal, he isn't overworked and gets adequate rest, and yet intercourse is becoming more difficult because of inadequate erection.

ATTENDING M.D: Any helpful physical findings?

VISITING M.D: Not many. Blood pressure, fundus, heart, and lungs are normal. Abdominal, genital, and rectal examinations were negative.

ATTENDING M.D: Testes all right?

VISITING M.D: Yes, no atrophy or prostatitis and no gynecomastia, if you're thinking along hormonal lines. Orthopedic testing of spine and muscle strength was normal; there was no pain on straight leg raising. Neurologic examination was entirely normal.

ATTENDING M.D: You're not leaving me very much. How about peripheral vessels?

PART III

VISITING M.D: Radial pulses were present. The left femoral seemed definitely weak, but the popliteals, dorsalis pedis, and posterior tibials were present bilaterally and seemed equal in both legs.

ATTENDING M.D: That weak left femoral seems to be the only thing I have to go on, but the

peripheral pulses are hard to explain if the patient's trouble is vascular. What laboratory tests do you have?

VISITING M.D: Just the usual hemoglobin, white count, sedimentation rate, urinalysis, and chest film, which were all normal, as was the electrocardiogram.

ATTENDING M.D: You said he had no claudication.

VISITING M.D: None in the calves.

ATTENDING M.D: You mean you consider the ache and fatigue in the hips and buttocks as claudication? I suppose that's right, since it comes only with exercise. Well, I believe we must investigate the patient's vascular system more thoroughly. Did you get roentgenographic studies of the abdomen and pelvis?

VISITING M.D: Yes, I did, looking for vascular calcification and perhaps an abdominal aneurysm. These films were not helpful.

ATTENDING M.D: An aortogram?

VISITING M.D: At that point I called in an orthopedic surgeon who could not find bony or muscular disorders. Then the patient was referred to a vascular surgeon who thought that an aortogram was advisable.

ATTENDING M.D: Did it answer the question?

PART IV

VISITING M.D: Yes. An obliterative process involving the terminal

Biochemical PROOF

of higher calcium levels with Calcisalin®

the new prenatal supplement

In a recent clinical test* which included biochemical determinations of ionic calcium, four groups of pregnant patients were studied. Here are the results after a four-week period, compared with the initial serological values.

PER CENT CHANGE IN CALCULATED IONIC CALCIUM

GROUP	CHANGE
Control. No medication	Minus 6.0%
No neuromuscular symptoms. Medication, CALCISALIN	PLUS 12.5%
Neuromuscular symptoms. Medication, dicalcium phosphate supplement	Minus 0.9%
Neuromuscular symptoms. Medication, CALCISALIN	PLUS 18.0%

*From *Calcium Metabolism in Pregnancy*, Gross, Wager and Loving, Bulletin Margaret Hague Maternity Hospital, Dec. 1953.

To help you make your own evaluation of CALCISALIN we will send samples and literature on request.

FACTS...

ABOUT CALCIUM AND PHOSPHORUS IN PRENATAL DIETARY SUPPLEMENTS

- Pregnancy depletes calcium, and the principal purpose of a prenatal supplement is to replenish calcium in the maternal pool.
- There is an antipathy between calcium and phosphorus which causes depression of calcium levels when phosphorus is administered *with* calcium.
- Most prenatal supplements, excepting Calcisalin, use dicalcium *phosphate* as a calcium source.
- Calcisalin omits phosphorus through the use of calcium *lactate*, and also includes aluminum hydroxide gel to take up excess *dietary* phosphorus.
- The proven result is that Calcisalin builds ionic calcium more effectively than supplements which employ a phosphorus component.
- The medical literature points more and more strongly toward calcium *lactate* as the calcium salt of choice in prenatal nutrition. In Calcisalin, calcium lactate and aluminum hydroxide gel are combined with iron and required vitamins.

The HARROWER Laboratory INC.

930 Newark Avenue, Jersey City 6, N. J.

aorta and encroaching on both of the common iliac arteries, though not completely occluding either of them, was clearly demonstrated. The left iliac was involved more extensively than the right.

ATTENDING M.D: Thrombotic obliteration of the terminal aorta. What can be done for it?

VISITING M.D: We are considering an endarterectomy for removal of thrombosis and probable arteriosclerotic plaque formation. This procedure has been performed with good results in a number of cases. Incidentally, this syndrome has been named after Leriche, a French surgeon.

ATTENDING M.D: Isn't the patient a little young for such extensive vascular disease?

VISITING M.D: I don't think so. His vascular damage is quite localized. Many cases of Leriche's syndrome on the basis of thrombotic occlusion of the terminal aorta have been described in men in their 40's. Incidentally, it has been found that the vessels in the legs may have palpable pulsations, because collateral circulation in the pelvis is usually quite good, though often not good enough to prevent the described symptoms.

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FOR OFFICE, CLINIC, HOSPITAL, OR HOME USE

For proctoscopy and sigmoidoscopy[1,2]
For preoperative cleansing and postoperative use[2,3]
To relieve fecal or barium impactions[2,3,4]
For use in collecting stool specimens[3]
As a routine enema

In ready-to-use polyethylene "squeeze bottle" . . . sanitary rectal tube sealed in cellophane envelope . . . distinctive rubber diaphragm prevents leakage and controls rate of flow. Each single use unit of 4½ fl. ozs. contains in each 100 cc., 16 Gm. sodium biphosphate and 6 Gm. sodium phosphate . . . an enema solution of *Phospho-Soda* (Fleet), as effective as the usual enema of one or two pints . . . provides complete left colon catharsis in two to five minutes.

(1) Sweetman, C. A.: J. So. Carolina M. A., 49:38, 1953. (2) Marks, M. M.: Am. J. Dig. Dis. 18:219, 1951. (3) Hamilton, H.: in Trans. 5th Am. Cong. Obst. & Gyn., Mosby, 1952, p. 69. (4) Bunnell, R. H., & Sprecher, H. C.: Am. J. Dig. Dis. 19:191, 1952. (5) Marks, M. M.: Personal Communications, 1952-53.

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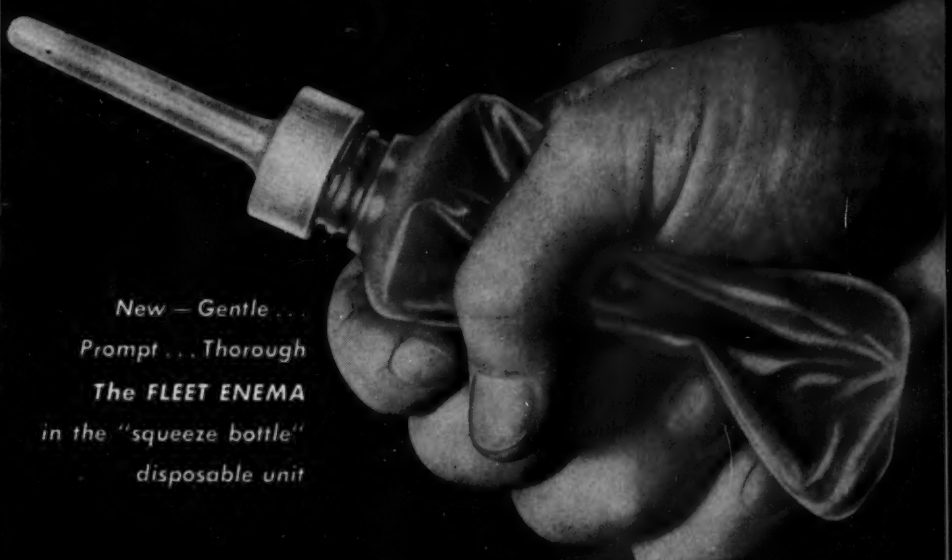

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in the "squeeze bottle"
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short REPORTS

Gastroenterology

Barium and Obstruction

Partial obstruction of the small bowel is not rendered complete by barium ingested for radiologic diagnosis. Dr. Henry Donato and associates of the Medical College of South Carolina and Roper Hospital, Charleston, find that barium given to dogs with previously produced partial obstruction does not impact, although stasis proximal to the obstruction is increased. Barium suspension remaining in the small intestine becomes less concentrated and is progressively diluted by intestinal fluids.

Surgery 35:719-723, 1954.

Serology

Induced Hypocholesteremia

Total serum cholesterol decreases with the administration of the plant sterol, beta-sitosterol. Doses of 5 to 6 gm. administered to 9 patients immediately before ingestion of food for periods up to eighteen weeks induced decrease of serum cholesterol levels and reducd ratios of cholesterol to lipid phosphorus. The hypocholesteremia was observed at the end of one week, continued to decline during the succeeding fours weeks of sitosterol administration, and remained below initial serum cholesterol levels until therapy was discontinued. Analytic ultracentrifugation of the sera of 3 patients revealed reductions in "atherogenic" Sf 10-100 classes of lipoproteins, report Dr. Maurice M. Best of the University of Louisville and associates. Beta-sitosterol apparently interferes with the absorption of dietary cholesterol and with the reabsorption of cholesterol excreted from the liver into the gastrointestinal tract.

Circulation 10:201-206, 1954.

Therapeutics

Antinephrotic Agent

Administration of heparin to nephrotic rats produces prompt reduction of lipemic and cholesterolemic levels but does not alter the nephrotic state in other respects. However, heparin injected during the phase of nephrosis induction inhibits the development of edema and ascites in addition to decreasing the plasma lipids, report Dr. Ray H. Rosenman and associates of Mount Zion Hospital, San Francisco. Heparinization probably facilitates removal of excess lipids by the liver and may also have an inhibitory effect upon the mechanism whereby nephrosis is induced in rats by injections of rabbit antirat kidney serum.

Proc. Soc. Exper. Biol. & Med. 86:599-603, 1954.

At long last . . .

The Comprehensive Antispasmodic for both skeletal and associated smooth muscle spasm . . . . . .

℞

EXPASMUS, *a new* combination of antispasmodics, plus a powerful analgesic—in *single prescription form* effectively reduces both skeletal and smooth muscle spasm, while affording more rapid release from pain.

Though skeletal muscle *pain-spasm* often engenders secondary smooth muscle spasm, no single antispasmodic preparation free of belladonna, barbiturates or amphetamine has heretofore been formulated to treat both types of spasm. In this respect, Expasmus is unique as it combines the smooth muscle relaxant, dibenzyl succinate and the skeletal muscle relaxant, mephenesin with the powerful analgesic, salicylamide to provide safe, fast-acting and *comprehensive* therapy.

Description: Each tablet of Expasmus contains dibenzyl succinate, 125 mg.; mephenesin, 250 mg.; salicylamide, 100 mg. Packed in bottles of 100 tablets, on your prescription only.

Indications and dosage: For relaxation of skeletal and associated smooth muscle spasm; relief of arthritic and low back pain; as a mild non-barbiturate sedative and relaxant in tension —Average dose, two tablets every four hours. Maximum daily dose, twelve tablets.

Samples Available to Physicians

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PARENZYME (INTRAMUSCULAR trypsin) is based on an entirely new concept of *biological continuity* . . . in terms of clinical enzymology. In very small doses, it initiates physiologic mechanisms—and

- dramatically restores circulation
- expedites repair of tissue
- prevents tissue necrosis

Safe, compatible, not an anticoagulant. No toxic reactions have been reported following administration of this new, intramuscular form of trypsin. PARENZYME therapy does not preclude the coadministration of other drugs. PARENZYME does *not* alter the clotting mechanism.

with dramatic benefits in

phlebitis	**iritis**
thrombophlebitis	**iridocyclitis**
phlebothrombosis	**chorioretinitis**
traumatic wounds	**varicose and diabetic leg ulcers**

DOSAGE: *Therapeutic:* 2.5 mg. (0.5 cc.) of PARENZYME (INTRAMUSCULAR trypsin) injected deep intragluteally 1 to 4 times daily for 3 to 8 days. *When more intensive therapy seems indicated, small doses at more frequent intervals ensure better results than larger doses less often.*

MAINTENANCE: To stabilize response to therapy, or in recurrent or chronic diseases, 2.5 mg. (0.5 cc.) once or twice a week may be required for maximum benefit.

Vials of 5 cc. (5 mg./cc.: crystalline trypsin suspended in sesame oil), by prescription only.

Information on PARENZYME and on the research background of clinical enzymology will be mailed on request.

Parenzyme

Intramuscular trypsin

NATIONAL

Hematology

Sterilization of Sera

Exposure of virus-contaminated serum to ultraviolet irradiation and beta propiolactone may eliminate the hazard of serum hepatitis transmission. Drs. Joseph Smolens and Joseph Stokes, Jr., of the University of Pennsylvania, Philadelphia, find that ultraviolet irradiation destroys most of the virus in serum heavily infected with bacteriophage T4r. Addition of as little as 1.5 gm. beta propiolactone per liter will eradicate all remaining viral elements. Electrophoretic analyses of sterilized sera demonstrate no alterations in serum proteins.

Proc. Soc. Exper. Biol. & Med. 86:538-539, 1954.

Pharmacology

Hypotensive Agent

Patients with hypertension or peripheral vascular disease may be benefited by oral or intramuscular administration of Dilatol, a propanol compound distributed in the United States as Arlidin. The drug produces a rapid fall in blood pressure accompanied by only slight changes in pulse rate, report Dr. A. G. Riddell and associates of the University College Hospital, London. Injection of 5 mg. intramuscularly or oral administration of 10 mg. promptly lowers diastolic pressure with little change in systolic pressure, so that pulse pressure is elevated.

Angiology 5:314-317, 1954.

Doctor to Doctor

Think of a gag that fits the illustration. For every issue a new gag is published and the author is sent $5. The Dec. 15 winner is

John G. Kerr, M.D.
Leicester, N.C.

Mail your caption to
The Cartoon Editor
Caption Contest
No. 2
MODERN MEDICINE
84 South 10th St.
Minneapolis 3, Minn.

"When I asked if she'd been through the menopause, she said no, but she'd been through the Great Smoky Mountains."

Radiology

Prevention of Fibrosis

Cortisone may inhibit pulmonary fibrosis due to intensive roentgen therapy of the thorax. Drs. Richard M. Friedenberg and Sidney Rubenfeld of Bellevue Hospital, New York City, observed no fibrosis in 9 patients given daily oral doses of 100 mg. of cortisone, despite intense irradiation exposure. Administration was started one week after the beginning of radiation and continued for one or two weeks after the completion of therapy. Cortisone also appears to prevent radiation sickness, promote appetite and weight increases, and improve dyspnea and cough.

Am. J. Roentgenol. 72:271-277, 1954.

Hematology

Leukemic Changes in Serum

The serum concentrations of vitamin B_{12} are abnormally elevated in patients with chronic myeloid leukemia. Dr. Marion F. Beard and associates of the University of Louisville occasionally find a positive correlation between decreases in the white blood cell count and lowered levels of bound vitamin B_{12} during remissions. However, even when leukocyte numbers return to within normal range, the serum B_{12} concentrations remain abnormally elevated. Serum levels of vitamin B_{12} are normal with chronic lymphatic leukemia and variable with the acute disease.

Blood 9:789-794, 1954.

Cardiology

Congestive Failure

Administration of tetraethylammonium bromide or hexamethonium iodide increases the vital capacity and decreases venous pressure of patients with congestive heart failure. Dyspnea and orthopnea are relieved for one or more days in patients with congestion due to hypertension, arteriosclerosis, or valvular heart disease, report Dr. Charles R. Shuman and associates of Temple University, Philadelphia. The blocking agents apparently release vasoconstrictor reflexes in the splanchnic and muscle areas and increase venular and arteriolar tone, reducing work of the left ventricle.

Am. Heart J. 47:737-744, 1954.

Radiology

Synergistic Therapy of Tumors

The therapeutic effectiveness of local radiation of experimental tumors in mice is enhanced by the simultaneous administration of a urethan derivative, compound 738. Animals bearing transplanted lymphosarcoma L4946 or mammary cancer A179955 exhibit no tumor growth after the combined therapy, whereas irregular growth occurs at a decreased rate in mice treated with roentgen ray alone, report Drs. Richard W. Whitehead and Raymond R. Lanier of the University of Colorado, Denver. Compound 738 has no carcinostatic effect when administered alone.

Cancer Res. 14:418-422, 1954.

IN THE HOSPITAL

Solutions of VARIDASE for instillation into deep suppurative wounds, burns, ulcers and body cavities with or without surgical incision.

VARIDASE in Carboxymethylcellulose Jelly *Lederle* for topical application.

IN THE OFFICE

VARIDASE in solution or jelly form for the ambulant therapy of burns, infected superficial wounds and ulcers.

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VARIDASE in Carboxymethylcellulose Jelly *Lederle*—the new dosage form that makes possible supervised treatment of chronic and decubitus ulcers, burns and other lesions in the patient's home. Enzymatic activity is maintained for the entire day, without the need for renewing wet dressings.

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Pharmacology

Induction of Cough Reflex

Inhalation of citric acid aerosols stimulates a cough response which can be used to evaluate the antitussive activity of various medicaments. Drs. Hylan A. Bickerman and Alvan L. Barach of Columbia University, New York City, employed aerosols of 5 or 10% citric acid to determine the cough suppressant effects of placebo, codeine, narcotine, Nalline, and d-isomethadone. Both healthy and asthmatic individuals had the greatest inhibition of cough reflex after the ingestion of 5 or 15 mg. of narcotine. Cough was reduced after 30 mg. of codeine sulfate or Nalline.

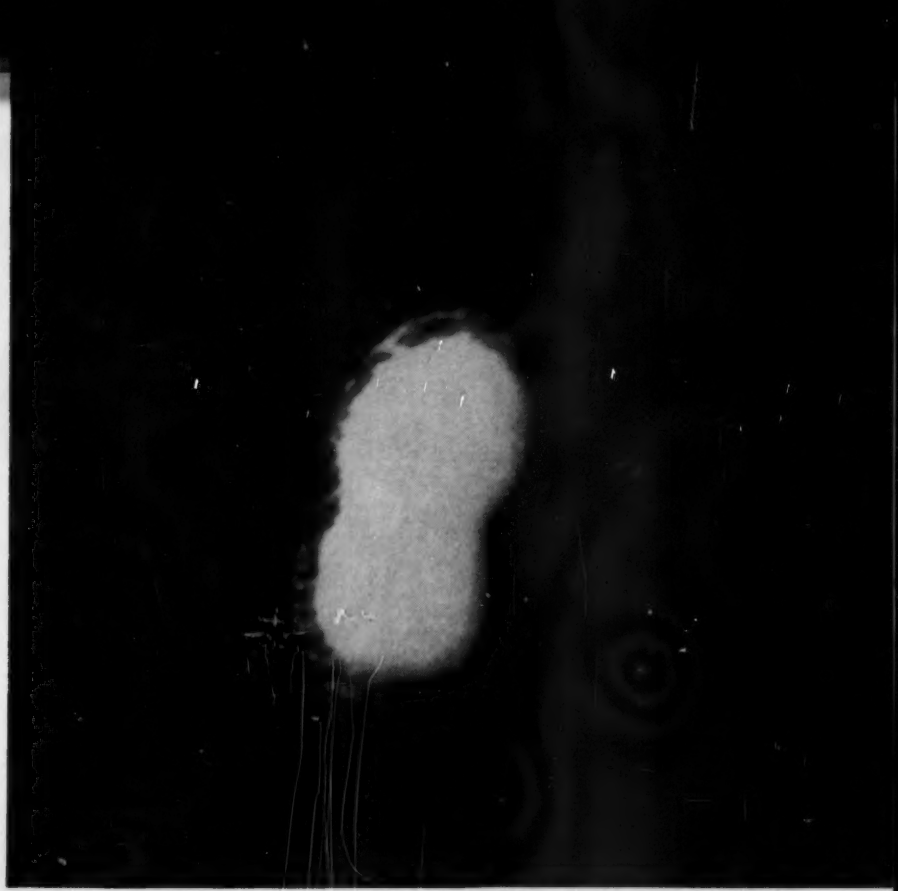
Am. J. M. Sc. 228:156-163, 1954.

Urology

Liquefaction of Semen

Alpha-amylase liquefies human semen without impairment or immobilization of the spermatozoa. Addition of 3 parts of a 5% solution of the enzyme to 9 parts of a coagulated ejaculate produces liquefaction within twenty minutes, report Drs. R. G. Bunge and J. K. Sherman of the State University of Iowa, Iowa City. Infertility associated with the nonliquefaction of semen may be remedied by collection of ejaculates, liquefaction by the enzyme, and artificial insemination. Postcoital vaginal insertion of alpha-amylase may be another remedial procedure.

Fertil. & Steril. 5:353-356, 1954.



ELECTRON PHOTOMICROGRAPH

Diplococcus pneumoniae 35,000 X

Diplococcus pneumoniae (Streptococcus pneumoniae) is a Gram-positive organism commonly involved in lobar—and bronchopneumonia • chronic bronchitis • mastoiditis sinusitis • otitis media • and meningitis.

It is another of the more than 30 organisms susceptible to

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100 mg. and 250 mg. capsules

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Cardiology

Aortic Insufficiency

A condition similar to rheumatic aortic insufficiency in man can be produced in dogs by removal of a part of the posterior aortic cusp with a backward cutting punch. The instrument used by Dr. J. Alai and associates of Hahnemann Medical College, Philadelphia, is formed of two parts, a cutting tip and a universal handle that is capable of removing a small amount of tissue. A tourniquet-controlled purse-string suture is placed in the left ventricle close to the apex, and a stab wound is made in the myocardium through which the punch, with the cutting mouth closed, is inserted into the aorta from the ventricular cavity. When the tip is in the descending aorta, the mouth of the punch is opened 30 to 45° and then pulled out slowly until resistance of the posterior valve cusp is felt. The punch is closed and removed, and the incision in the ventricle is closed. The pericardium is left open, and the chest is closed with pericostal sutures.

Surgery 36:237-242, 1954.

CORRECTION

In the report of the work of Leo J. Cass, M.D., and Willem S. Frederik, M.D., on geriatric constipation *(Modern Medicine,* Oct. 15, 1954, p. 97), the dosage of malt soup extract should have been 4 tbs. instead of 1, as given.—Ed.

visceral eutonic

DACTIL®

PLAIN AND WITH PHENOBARBITAL

relieves **pain≠spasm** usually in ten minutes

DACTIL relieves gastroduodenal or biliary pain so quickly that you can usually see it work right in your office.

DACTIL Capsules act at the site of visceral pain—relieve pain ≠ spasm within minutes and control spasm within two days. Unusually well tolerated, DACTIL does not interfere with gastrointestinal or biliary secretions, normal tonus or motility. 02154

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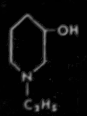

Our Office Nurse

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Miami Beach, Fla.

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Thiamine Mononitrate	6 mg.
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Liver Fraction 2, N.F.	300 mg. (5 grs.)
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or SUR-BEX with Vitamin C

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The Hemolytic Syndromes

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(Continued from page 80)

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BASIC SCIENCE *Briefs*

Oncology

Metastases and Tumor Size

The factors which influence and favor cancer cell growth may also be responsible for the establishment of metastases. A positive correlation was observed between the attained volume of transplantable sarcoma T241 and the number of lung metastases in 233 mice, report J. Sumner Wood, Jr., and associates of the New England Deaconess Hospital, Boston. The number of lung metastases could be estimated within a range of statistical significance, once the tumor volume, attained during a specific time interval, was established.

Cancer 7:437-443, 1954.

Endocrinology

Cortical Secretion and Work

The natural pattern of intensive adrenal cortical secretion in early morning seems to persist even when nights are devoted to work and days to sleep. In 4 individuals with reversed habits, Dr. Frank H. Tyler and associates of the University of Utah, Salt Lake City, observed highest plasma content of 17-hydroxycorticosteroid at 6 A.M., toward the end of the active period.

Endocrinology

Sodium-Retaining Factors

Though human kidneys excrete sodium-retaining material in scant quantity during good health, urinary levels are increased by toxemia of pregnancy, Cushing's disease, adrenal tumor, and malignant hypertension. ACTH has little effect on output, although the reactions may be masked by increase of glucocorticoids. However, administration of growth hormone, report Dr. Eleanor H. Venning and associates of McGill University, Montreal, increases the sodium-holding effect in healthy subjects. Yield of retentive factors was higher when urine was hydrolyzed with the enzyme, β-glucuronidase.

Patients . . . I have met

The editors will pay $1 for each story published. No contributions will be returned. Send your experiences to the Patients I Have Met Editor, MODERN MEDICINE, 84 South Tenth St., Minneapolis 3, Minn.

Delayed Report

I received the following telegram from the husband of a former patient: "Triplets just arrived. More tomorrow."—L.J.

Well Qualified

"Why do you say you should join the diplomatic corps?" I asked the patient I was examining.

"Because I've been married fifteen years and my wife still thinks I have a sick friend," he answered.—B.P.S.

Small Comfort

When our ship was caught in a storm, I consoled the patients by saying, "Cheer up, no one ever died of seasickness."

"Don't say that, Doctor," joked a woman. "The hope of dying is all that keeps me alive."—B.P.S.

"This is a recent one of the wife."

Daprisal*

relieves both aspects of pain

physical—because it provides the combined analgesic effect of acetylsalicylic acid and phenacetin, potentiated by amobarbital.

psychic—because it provides the mood-ameliorating effect of Dexamyl* (Dexedrine† and amobarbital).

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*T.M. Reg. U.S. Pat. Off.
†T.M. Reg. U.S. Pat. Off. for dextro-amphetamine sulfate, S.K.F.

Faithless Healing

"I might as well tell you, Doc," said the oldtimer, "I have no faith in medical science."

"It doesn't matter," I answered. "A mule has no faith but a veterinarian cures it anyway."—K.E.

Timely Assistance

I asked a 100-year-old patient to what he attributed his old age.

"It's very simple," he replied. "I've been taking vitamin tablets since I was 97."—C.V.M.

Unwanted

A patient who needed a vacation said he couldn't get away. "Can't your firm do without you?" I asked.

"Sure they can," he answered, "but I don't want them to find it out!"—P.B.

ELECTRON PHOTOMICROGRAPH

Streptococcus faecalis 30,000 X

Streptococcus faecalis is a Gram-positive organism commonly involved in a variety of pathologic conditions, including urinary tract infections subacute bacterial endocarditis • peritonitis.

It is another of the more than 30 organisms susceptible to

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100 mg. and 250 mg. capsules

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INDEX TO ADVERTISERS

CONCEPTION CONTROL and FERTILITY

The acceptability of a dependable contraceptive technic is immeasurably enhanced when patients can be assured of future unimpaired fertility.

Normally, patients contemplating contraception wish to achieve two objectives. Primarily, they desire protection. This must be optimum and attained with effective simplicity. The contraceptive method in order to be acceptable to both patient and physician must be dependable. Among the various conception control technics presently advocated in clinics, none provides a greater degree of protection than the diaphragm-and-jelly method.[1] Unplanned pregnancies resulting from properly instructed use of this method are practically nil. Tietze[1] estimates that urban population groups using the diaphragm-and-jelly technic have an unplanned pregnancy only "once in ten to 15 years."

Secondly, but of equal importance, patients want reassurance about future fertility. When conception control is abandoned in order to have a child, patients frequently experience a burden of anxiety and irritability if the pregnancy is unduly delayed. Experience has shown that when regular users of the diaphragm-and-jelly method discontinued contraception in order to become pregnant, "25 to 30 per cent achieved pregnancy within one month."[1]

The RAMSES® TUK-A-WAY® Kit contains a RAMSES diaphragm and introducer and RAMSES VAGINAL JELLY* and provides optimum protection as well as reassurance regarding unimpaired fertility. The diaphragm is flexible and cushioned, an excellent mechanical barrier, and together with RAMSES jelly combines dependability with utmost comfort.

Because parity, motivation, and patient intelligence all play a major part in the success of a contraceptive technic, the final basis for selection of the contraceptive method must rest with the physician whose decision is predicated on a thorough evaluation covering all of these factors.

When, in the physician's judgment, parity, anatomic factors, or patient intelligence indicates the use of the jelly-alone method of contraception, RAMSES VAGINAL JELLY is recommended. It offers simplicity of application, and has an esthetically acceptable and effective consistency. RAMSES VAGINAL JELLY provides both a physical barrier, and the fastest sperm immobilization recognized by the Brown and Gamble technic. The method is "one of choice" in most patients of lower parity and, of course, among the nulliparous.[2] These RAMSES Gynecological Products are recognized by the **appropriate Councils of the American Medical Association.**

*Active agent, dodecaethyleneglycol monolaurate 5%, in a base of long-lasting barrier effectiveness.

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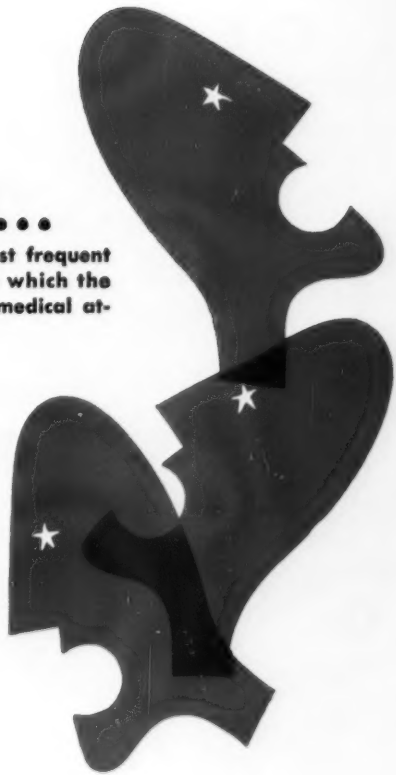
JULIUS SCHMID, INC., *gynecological division*
423 West 55th Street, New York 19, N. Y.

"COUGH...

one of the most frequent symptoms for which the patient seeks medical attention."[1]



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ANTIHISTAMINIC • DECONGESTANT

Cough Syrup

...relieves the cough due to colds
...eases the allergic cough

Synephricol acts by prompt and prolonged decongestion of bronchial mucous membranes, by mild central sedation, and by decreasing sensitivity of the pharyngeal mucosa through antihistaminic action.

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Neo-Synephrine® hydrochloride	5.0 mg.
Thenfadil® hydrochloride	4.0 mg.
Dihydrocodeinone bitartrate*	1.33 mg.
Potassium guaiacol sulfonate	70.0 mg.
Ammonium chloride	70.0 mg.
Menthol	1.0 mg.
Chloroform	0.0166 cc.
Alcohol	8%

*Exempt narcotic

DOSAGE:

Adults—1 or 2 teaspoonfuls every two to four hours, not to exceed 5 doses in twenty-four hours.

Children 6 to 12 years—½ to 1 teaspoonful four or five times daily.

BOTTLES OF 1 PINT AND 1 U. S. GALLON.

WINTHROP

Winthrop-Stearns INC.
NEW YORK 18, N. Y. WINDSOR, ONT.

1. Banyai, A. L.: Management of Cough in Daily Practice. J.A.M.A., 148:501, Feb. 16, 1952.

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FORM 3547 REQUESTED